
FISH AND WILDLIFE TECHNICAL MEMORANDUM

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Technical Memorandum

Date: Thursday, April 02, 2015

Project: N-12 Niobrara East and West EIS

Job No. 84534

To: Project File

From: HDR

Subject: Fish and Wildlife

I. Introduction

The U.S. Army Corps of Engineers (Corps) is preparing an environmental impact statement (EIS) for the proposed reconstruction of the Nebraska Highway 12 (N-12) roadway east and west of the Village of Niobrara (Niobrara), Nebraska (Project). Because the Project would have impacts on regulated waters of the U.S. and would require a Clean Water Act Section 404 permit, and because no other federal action is required, the Corps is the lead federal agency for compliance with the National Environmental Policy Act (NEPA).

The purpose of this technical memorandum is to characterize the existing conditions, to examine any trends in fish and wildlife populations and their associated habitat, and to examine potential effects of the Project and alternatives on fisheries and wildlife resources. The information presented in this technical memorandum is used to describe the existing conditions and associated impacts on alternatives carried forward for analysis in the N-12 Draft EIS. This technical memorandum has been developed prior to completion of alternative screening. Therefore, the full range of alternatives has been evaluated. Detailed information on the purpose of and need for the Project and on the alternatives carried forward for analysis is provided in the N-12 Draft EIS. The range of alternatives evaluated in this technical memorandum are:

- No Action – Section 404 permit denied or withdrawn; new roadway not constructed
- Alternative A1 – Elevation raise on the existing N-12 alignment
- Alternative A2 – Elevation raise parallel to the existing N-12 alignment
- Alternative A3 – New roadway along the base of the Missouri River bluffs
- Alternative A7 – Same alignment as Alternative A3 but with 1.8 miles of bridges incorporated

II. Affected Environment

A. Regulatory Background

The following sections discuss the relevant federal and state regulations regarding fish and wildlife.

Relevant Federal Regulations

The Fish and Wildlife Coordination Act (16 United States Code [USC] 661-667c) requires the lead federal agency for federal projects resulting in modifications (such as impoundments or diversions) to any stream or other body of water (in this case, the Corps) to consult with the U.S. Fish and Wildlife Service (USFWS) on issues related to conservation of wildlife resources.

The Migratory Bird Treaty Act (MBTA) (16 USC 703-712) protects migratory birds, including raptors, and any active nests. Specifically, the MBTA prohibits activities that may harm migratory birds, their young, or their eggs, including the removal of active nests that results in the loss of eggs or young. In Nebraska, most nongame birds, with the exception of rock dove (pigeon) (*Columba livia*), house sparrow (*Passer domesticus*), and European starling (*Sturnus vulgaris*), are protected under the MBTA.

Relevant State Regulations

The Nebraska Game and Parks Commission (NGPC) is the official state agency for all matters pertaining to fish and wildlife management. NGPC issues regulations and develops management programs for fish and wildlife, as directed by Nebraska Revised Statute Chapter 37. Take of game species, such as deer, turkey, pheasant, quail, and some species of waterfowl, requires a hunting license. Take of sport fish, such as walleye, largemouth bass, and channel catfish, requires a fishing license. Take of nongame species, such as small mammals, birds, and reptiles, is permitted for specific activities, such as scientific collecting. In addition, NGPC, through the Nebraska Natural Legacy Project, has developed lists of at risk species that are used to help prioritize conservation planning and actions. Tier I species are those that are globally or nationally most at-risk of extinction and occur in Nebraska, and Tier II species are considered either state critically imperiled, state imperiled, or state vulnerable. The at-risk species lists, composed by Schneider et al. in 2011, are provided in Attachment A.

B. Study Area

The Study Area for reviewing impacts on fish, other aquatic resources, and wildlife resources and habitat for the Project extends west to the town of Verdel, Nebraska, and east to the intersection of N-12 and County Road 531. The Study Area includes all water bodies potentially affected by the action alternatives. The water bodies include Bazile Creek, Ponca Creek, Harry Miller Creek, Medicine Creek, other unnamed tributaries to the Missouri River, and the floodplain wetlands that are connected to the Missouri River. The Missouri River main channel and the Niobrara River are not located within the right-of-way (ROW) of any of the alternatives. See Figure 1 for the fish and wildlife Study Area.

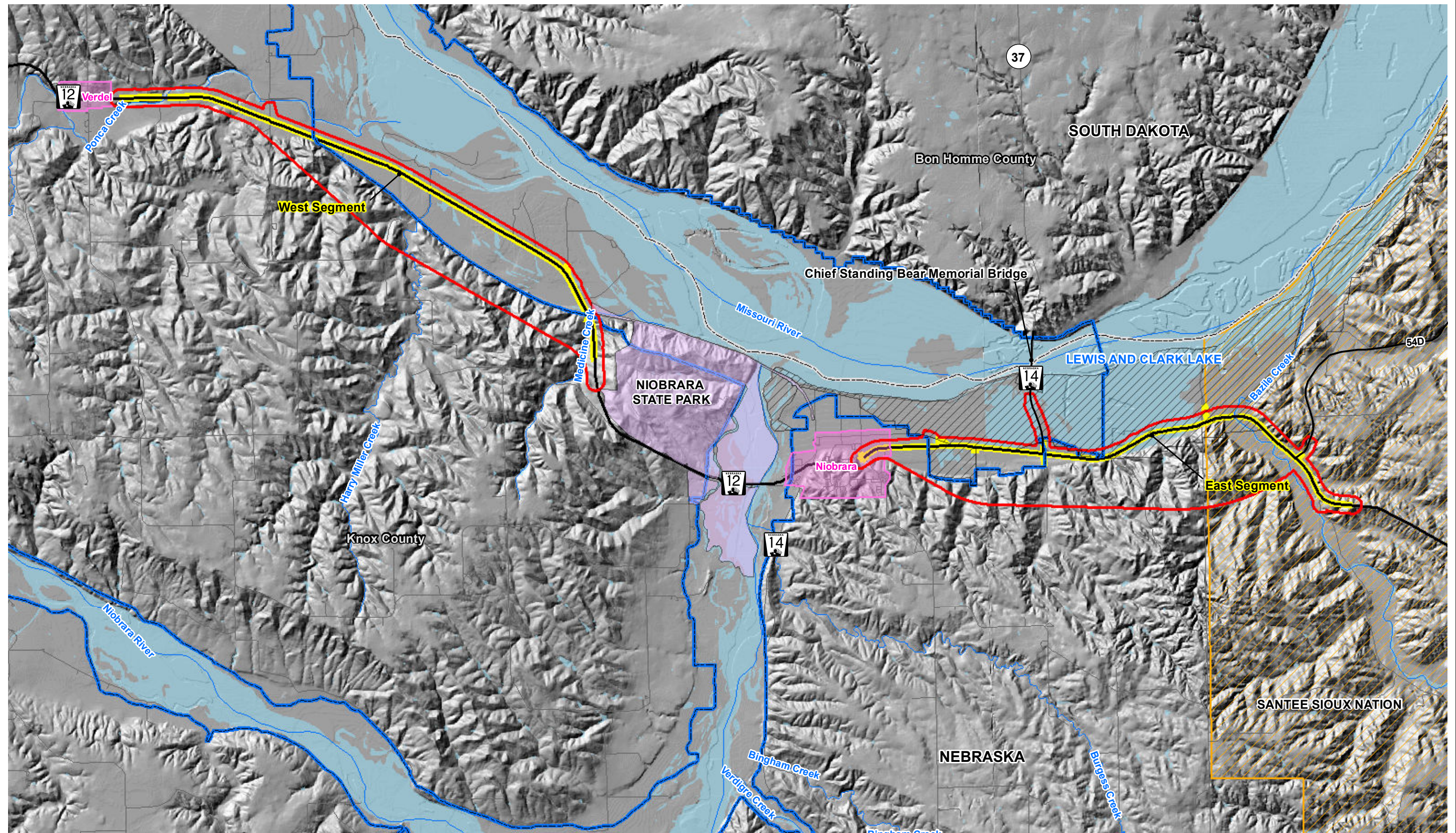
C. Existing Conditions

The Missouri River, its associated waterways, and the adjacent floodplains and bluffs provide diverse biological resources that support a variety of fish and wildlife species and populations. The fish and wildlife habitat and species common to the Study Area are discussed below. Threatened or endangered species and their associated habitat are discussed in the Protected Species Technical Memorandum (see Appendix E).

Habitat

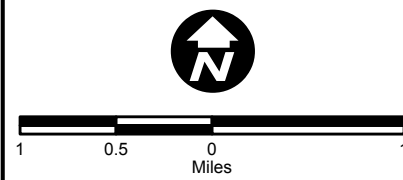
The Study Area is located within the Mixedgrass Prairie Ecoregion, between the Tallgrass Prairie Ecoregion to the east and the Shortgrass Prairie Ecoregion to the west. The Mixedgrass Prairie Ecoregion is a transition zone where the Tallgrass and Shortgrass Prairie Ecoregions merge, so it takes on characteristics of both. Plant composition varies considerably, depending on soil type, topography, weather influences, and land use. The Mixedgrass Prairie Ecoregion's highly diverse flora and fauna include a mix of species also found in the Tallgrass and Shortgrass Prairie Ecoregions (Schneider et al. 2011).

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Aerial Imagery: 2006 NAIP, Knox County, Nebraska

Legend	Study Area	Wildlife Management Areas
N-12 Segments	Waterways	Recreational River Boundary
Nebraska Highway 12	City Limits	Santee Sioux Nation
Roads	Counties	Niobrara State Park



Project Study Area
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The Study Area lies within two of Nebraska's Biologically Unique Landscapes, as described by the Nebraska Natural Legacy Project (Schneider et al. 2011). A Biologically Unique Landscape is a specifically selected landscape that offers some of the best opportunities for conserving the full array of biological diversity in Nebraska. Landscapes were selected based on known occurrences of ecological communities and at-risk species and were selected to meet the goals that NGPC has set for each community type and Tier I species (Schneider et al. 2011). The Lower Niobrara River Biologically Unique Landscape includes the Niobrara River channel and a 2-mile buffer on each side of the river, from central Brown County eastward to its confluence with the Missouri River in Knox County. The Niobrara River in this reach has a broad braided, somewhat shallow channel with many open sandbars and wooded islands. Much of the valley bottom is in crop production, although some areas support cottonwood and bur oak woodlands. Some wet meadows and marshes remain in the floodplain. The bluff slopes are mainly mixedgrass prairie with some oak woodlands in the east. Sandbars on the lower stretch of the Niobrara River from Holt County eastward support colonies of the federally and state-listed interior least tern (*Sterna antillarum athalassos*) and piping plover (*Charadrius melodus*). Bald eagles (*Haliaeetus leucocephalus*) are also known to nest along this reach of the Niobrara River. Twelve Tier I at-risk species can be found in the Lower Niobrara River Biologically Unique Landscape: Iowa skipper (*Atrytone arogos iowa*), prairie moonwort (*Botrychium campestre*), piping plover, whooping crane (*Grus americana*), ottoe skipper (*Hesperia ottoe*), wood thrush (*Hylocichla mustelina*), Northern river otter (*Lontra canadensis*), long-billed curlew (*Numenius americanus*), pallid sturgeon (*Scaphirhynchus albus*), regal fritillary (*Speyeria idalia*), interior least tern, and Bell's vireo (*Vireo bellii*) (Schneider et al. 2011).

The Verdigris-Bazile Biologically Unique Landscape occupies the watersheds of Verdigris Creek and Bazile Creek in Cedar, Knox, Holt, and Antelope counties. The streams are spring-fed coldwater streams that have unique fish assemblages, like Iowa darters (*Etheostoma exile*), johnny darters (*Etheostoma nigrum*), plains topminnow (*Fundulus sciadicus*), and western silvery minnow (*Hybognathus argyritis*). These watersheds contain a mosaic of croplands, restored native and exotic grasslands, and native tallgrass and mixedgrass prairie. Most of the prairies have been somewhat degraded by use of livestock grazing regimes that reduce native species diversity and promote exotic plant invasion. Oak woodlands are common along the streams and in ravines. The northern portion of the landscape includes Missouri River bluffs and breaks. These areas support loess bluff mixedgrass prairie, tallgrass prairie, and deciduous woodlands. Fifteen Tier I at-risk species are identified as occurring within the Verdigris-Bazile Biologically Unique Landscape: burrowing owl (*Athene cuniculari*), Iowa skipper, prairie moonwort, piping plover, Plains topminnow, whooping crane, ottoe skipper, wood thrush, American burying beetle (*Nicrophorus americanus*), Plains pocket mouse (*Perognathus flavescens*), regal fritillary, interior least tern, buff-breasted sandpiper (*Tryngites subruficollis*), greater prairie-chicken (*Tympanuchus cupido*), and Bell's vireo (Schneider et al. 2011).

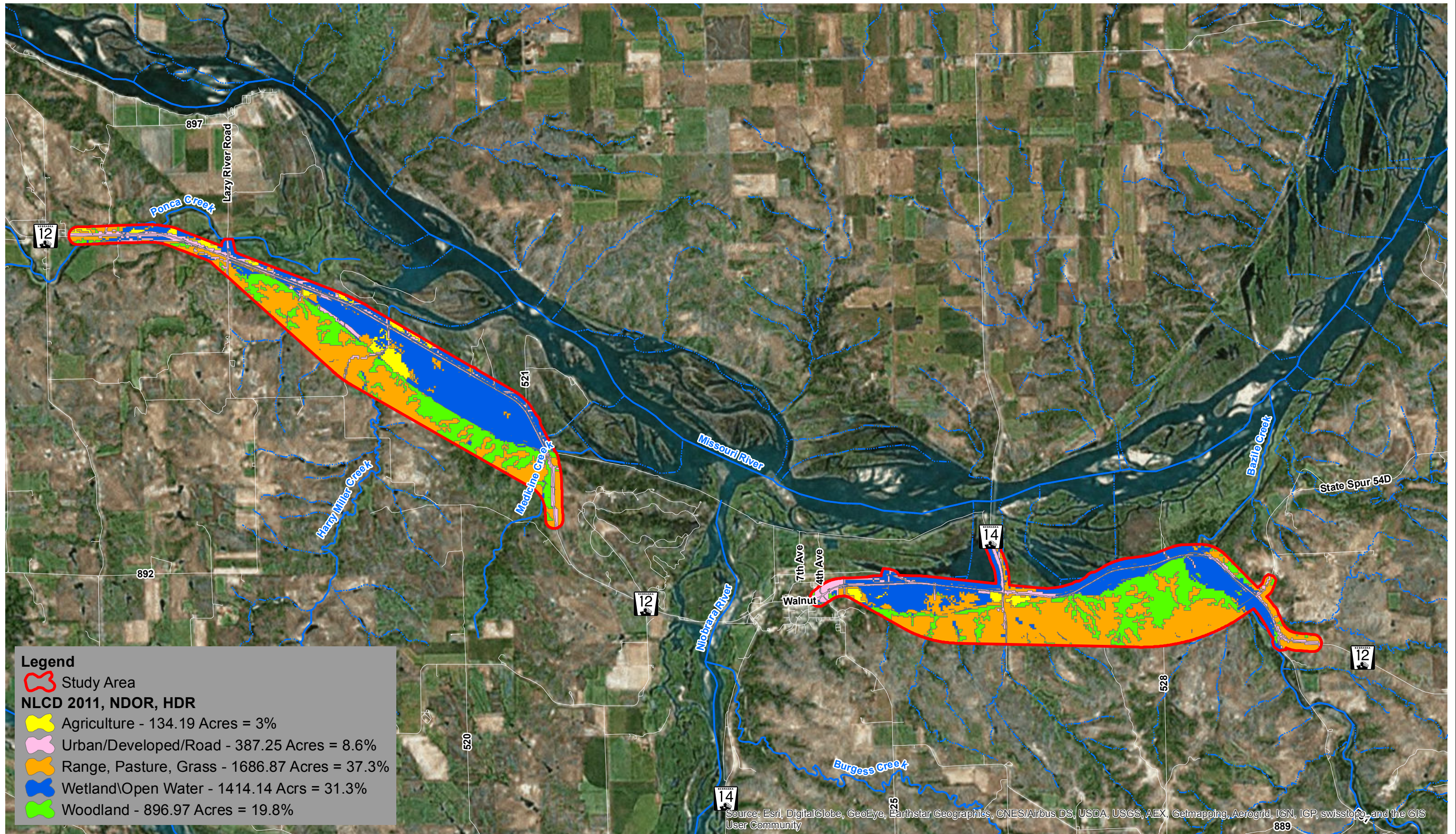
The Study Area was superimposed on aerial photographs and overlaid with the 2011 National Land Cover Database coverage (USGS 2014) to categorize habitat types using ArcGIS software. The Nebraska Department of Roads' (NDOR's) wetland determination data were used to identify wetlands and other waters of the U.S. (see Appendix F).

As discussed in the Draft EIS, rangeland, which includes pastures, range, and grasslands, is the primary wildlife habitat in the Study Area. Land used for agricultural production is also discussed as habitat because this habitat type is often used by several species in the area. The other main wildlife habitat types in the Study Area are woodlands and wetlands. See Figure 2 for locations of these habitat types.

Rangeland

A mix of native and non-native species dominates the rangeland communities in the Study Area. Much of the native grasslands throughout the Study Area have been converted to pasture and rangeland and contain weeds and other introduced species along with native species, which has led to hay production, intensive grazing, and decreasing plant diversity. The native grassland communities in this area are typically made up of drought-resistant short grass species on hilltops, such as blue grama (*Bouteloua gracilis*) and buffalograss (*Buchloe* spp.). Grassland side slopes often contain communities of medium-statured grasses, such as side-oats grama (*Bouteloua curtipendula*), wheatgrass (*Elymus* spp.), little bluestem (*Schizachyrium scoparium*), and sand dropseed (*Sporobolus cryptandrus*). Lower slopes and drainage valleys are often dominated by tallgrass prairie species, such as big bluestem (*Andropogon gerardii*), Canada wildrye (*Elymus canadensis*), switchgrass (*Panicum* spp.), and Indiangrass (*Sorghastrum nutans*) (Schneider et al. 2011). Smooth brome (*Bromus inermis*), a non-native aggressive grass species typically used for hay is widespread in both the uplands and bottomlands of the Study Area.

In the upland grassland areas, several woody species are encroaching on native grasslands, including green ash (*Fraxinus pennsylvanica*), Eastern red cedar (*Juniperus virginiana*), smooth sumac (*Rhus glabra*), and slippery elm (*Ulmus rubra*). Musk thistle (*Carduus nutans*), spotted knapweed (*Centaurea stoebe*), Canada thistle (*Cirsium arvense*), and leafy spurge (*Euphorbia esula*) are widely distributed within counties located along the Missouri National Recreational River (MNRR) and are designated as noxious weeds by the states of Nebraska and South Dakota. These weeds often occur in grazed pastures and agricultural areas and can easily spread to native grasslands, severely degrading their value as habitat.



Legend

Study Area

NLCD 2011, NDOR, HDR

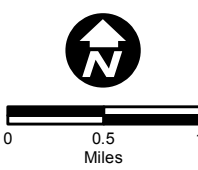
Agriculture - 134.19 Acres = 3%

Urban/Developed/Road - 387.25 Acres = 8.6%

Range, Pasture, Grass - 1686.87 Acres = 37.3%

Wetland/Open Water - 1414.14 Acers = 31.3%

Woodland - 896.97 Acres = 19.8%



Fish and Wildlife Habitat Classification

N-12 Niobrara East and West
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Agricultural Land

Tilled and/or managed agricultural areas occur in the “Agricultural Land” land-use cover type shown in Figure 2. These areas are common throughout the Missouri River floodplain and throughout the Study Area. Agricultural lands support alfalfa, corn, soybeans, small grains, and other crops. Also included as agricultural lands are fallow ground and disturbed areas associated with agriculture. Agricultural land is considered a low-quality wildlife habitat type because it is often tilled, managed, and used for production. These areas typically do not contain native vegetation.

Woodland

Historically, very little of this Mixedgrass Prairie Ecoregion was covered in woodlands, but today, most of the watercourses are lined with riparian forests. Woody vegetation is relatively rare except in drainage areas, along the steep slopes of the bluffs, and in riparian areas along streams and on the floodplain. The rivers and streams in the Study Area include the Missouri River, Ponca Creek, Harry Miller Creek, Medicine Creek, and Bazile Creek. Riparian forests occur within the floodplains of the rivers and streams in the Study Area and are well developed on the floodplains of the Missouri and Niobrara rivers. Common riparian species include silver maple (*Acer saccharinum*), green ash, cottonwood (*Populus deltoides*), willow (*Salix* spp.), and American elm (*Ulmus americana*). Shrubs, such as false indigo (*Amorpha* spp.), roughleaf dogwood (*Cornus drummondii*), and willow, dominate the understory. Herbs in the nettle family, including wood nettle (*Laportea canadensis*) and stinging nettle (*Urtica dioica*), dominate the ground layer.

Several woodlands exist along the bluffs and steep side slopes adjacent to drainage areas in the Study Area. Native stands of black walnut (*Juglans nigra*) and bur oak (*Quercus macrocarpa*) exist on some of the steeper slopes. Eastern red cedar may also be found in these sloping woodlands as well as encroaching on some of the grasslands in the Study Area. Russian olive (*Elaeagnus angustifolia*) has invaded many of the shrubland and bottomland forests, especially those subject to heavy grazing. A recent monitoring survey conducted in the Missouri River bluffs of Cedar County found common hackberry (*Celtis occidentalis*), green ash, Eastern red cedar, American elm, and bur oak to be the most common species in the tree stratum. The shrub stratum was mostly composed of roughleaf dogwood, Eastern red cedar, smooth sumac, American elm, and common prickly ash (*Zanthoxylum americanum*).

Open Water and Wetlands

There are relatively few types of wetlands typically associated with the geographic region the Study Area traverses. These are mainly palustrine and riverine wetlands. Palustrine wetlands contain emergent vegetation, such as bulrushes (*Schoenoplectus* spp.) and cattails (*Typha* spp.), or less aquatic plants, such as spikerush (*Eleocharis* spp.) and smartweed (*Polygonum* spp.). Riverine systems include rivers and streams.

Semipermanently and permanently flooded palustrine and riverine wetlands are associated with river drainages throughout the Study Area.

A sandbar-marsh community is found along the broader eastern portion of the Niobrara River. Barren sandbars provide nesting sites for the federally and state-listed interior least tern and piping plover. The marshes contain a wide variety of aquatic plants and animals (National Park Service [NPS] 1997). Willows and freshwater marsh vegetation were documented in this area during a 2005 vascular plant inventory of the MNRR (Kottas and Stubbendieck 2005). Reed canarygrass (*Phalaris arundinacea*) and cattail marshes exist along the Missouri River floodplain and the Lewis and Clark Lake delta. Both reed canarygrass and cattails are very hardy species and often outcompete other native vegetation, allowing for extremely limited vegetation species diversity in these wetlands. Additional information on wetland vegetation identified and a more detailed description of the wetlands found within the Study Area are provided in the Wetlands and Other Waters of the U.S. Technical Memorandum (see Appendix F).

Curly pondweed (*Potamogeton crispus*), an invasive species, has been documented in Lewis and Clark Lake. This weed forms dense mats on the water's surface, shading out native vegetation and creating problems for recreationists (Bertrand 2008). Hybrid cattails (*Typha x glauca*) are widespread in wetlands throughout the Study Area. Purple loosestrife (*Lythrum salicaria*) is spreading rapidly and is threatening wildlife habitat (forage and cover) on the Missouri and Niobrara rivers (NPS 1997). This plant is designated as a noxious weed in Nebraska and South Dakota and has been documented along the Niobrara River. Purple loosestrife was identified and mapped along the Niobrara River, adjacent to N-12, during a vascular plant inventory of the MNRR in 2005 (Kottas and Stubbendieck 2005). Heavy infestations of purple loosestrife were common in Lewis and Clark Lake in the early 2000s but declined significantly around 2008 as well as in subsequent years. The reason for the decline is unknown but may be attributed to the Corps and other agencies distributing purple loosestrife biological control beetles (*Galerucella* spp.) in infested areas every year since 1995. Purple loosestrife and saltcedar (*Tamarix ramosissima*), also known as tamarisk, another noxious weed in both Nebraska and South Dakota, have been documented by South Dakota Game, Fish, and Parks (SDGFP) in Bon Homme and Charles Mix counties, South Dakota, along the Missouri River and its South Dakota tributaries. Purple loosestrife and saltcedar commonly occur in wetland and river island areas and often choke out native vegetation, severely impairing wildlife habitat. Invasive common reed has become more prolific in Lewis and Clark Lake over the last few years. Both the invasive form (*Phragmites australis* ssp. *australis*) and the native form (*Phragmites australis* ssp. *americanus*) exist in the lake, but the more vigorous invasive form has been encroaching on wetlands throughout the lake and may become problematic in the lake and surrounding areas in future years.

Habitat Trends

The Missouri River valley has been transformed from a landscape dominated by floodplain forests and grasslands into habitats dominated by agriculture and river impoundments (Dixon et al. 2010). The 39-Mile District of the MNRR (upstream of Lewis and Clark Lake) is greatly influenced by the presence of Lewis and Clark Lake and sediment inputs from the Niobrara River. Sediments from the Niobrara River, Bazile Creek, Ponca Creek, and other tributaries, along with the Lewis and Clark Lake impoundment, have allowed for an extensive delta formation and aggradation of the Missouri River channel bed both upstream and downstream of the confluence with the Niobrara River. As a result, channel bed aggradation has led to increases in river and groundwater levels.

The increases in water levels have permanently flooded areas of the floodplain, killing riparian vegetation and converting these riparian areas to marshlands (Dixon et al. 2010). The rising groundwater levels have led to a decrease in grassland and riparian woodland vegetation through the conversion of these areas to either agriculture or wetlands. Dixon et al. (2010) determined that “the large cottonwood forests remaining across much of the [Missouri River] floodplain are...currently helping support a high diversity of plants and animals, but unlikely to be replaced by regeneration in the future.” In summary, habitat trends in the 39-Mile District of the MNRR display an increase in agricultural lands and wetlands.

Fish and Aquatic Resources

In and around the Study Area, fish and aquatic communities exist in the associated backwaters and wetlands of the Missouri River, Ponca Creek, Bazile Creek, and other unnamed tributaries. Although not located within the Study Area, Lewis and Clark Lake, which is part of the Missouri River, is included in the discussion of the existing environment because of its proximity to the Study Area and the mobile nature of fish and aquatic species. Very few studies and surveys have been conducted on fisheries and aquatic species within the floodplains in the Study Area; however, wetlands are used by many fish species for spawning and nursery habitat. Native fishes in the Missouri River between Fort Randall Dam and the headwaters of Lewis and Clark Lake, which includes the 39-Mile District of the MNRR, are relatively productive and dominated by cool and warm water species, including catfish, sturgeon, sauger, suckers, and a naturally reproducing population of paddlefish (NPS 2009a). In addition, this river reach is designated as a recovery priority management area for the pallid sturgeon, which is discussed further in the Protected Species Technical Memorandum (see Appendix E). NPS provides a list of fish species reported in the MNRR and comments on species status and abundance (NPS 2009b). This list is included in Attachment B.

Mussels have been identified in the 39-Mile District of the MNRR, with the fragile papershell (*Leptodea fragilis*) and pink papershell (*Potamilus ohioensis*) being the most common (Shearer et al. 2005).

Fish designated as threatened or endangered by federal or state resource agencies are discussed in the Protected Species Technical Memorandum. Fisheries habitat within the Study Area exists outside of the main river channels (that is, the Missouri and Niobrara rivers) but does include the tributaries to these rivers and associated floodplain wetlands.

Fish

Fish species common to the 39-Mile District of the MNRR include freshwater drum (*Aplodinotus grunniens*), common carp (*Cyprinus carpio*), goldeye/herring (*Hiodon alosoides*), channel catfish (*Ictalurus punctatus*), yellow perch (*Perca flavescens*), white crappie (*Pomoxis annularis*), and walleye (*Sander vitreus*). Less common species in this reach include flathead catfish (*Pylodictis olivaris*), shovelnose sturgeon (*Scaphirhynchus platyrhynchus*), and sauger (*Stizostedion canadensis*) (Berry and Young 2004). A naturally reproducing population of paddlefish (*Polyodon spathula*) also occurs in this river reach (Corps 2010). Galat et al. (2005) noted that approximately 60 species of fish use the Missouri River floodplain habitats as these species are well adapted for an environment with continuous high turbidity, swift currents, and an unstable sand-silt bottom.

An angler use and harvest survey of the Missouri River in South Dakota and Nebraska from Fort Randall Dam to Gavins Point Dam surveyed traditional access points, including a collection of sites along the 39-Mile District of the MNRR in the vicinity of the Study Area and Lewis and Clark Lake. From May to October in 2011 and 2012, 21 and 16 species of fish were caught, respectively. Walleye and sauger have dropped in abundance due to consecutive years of low reproduction, while channel catfish and smallmouth bass remained abundant. (SDGFP April 2014).

Fish surveys have occurred in the Study Area within Bazile Creek and slightly outside of the Study Area in the Niobrara River delta area. Approximately 44 species have been sampled and documented in the vicinity Study Area. These species include several species of minnow, chub, shiner, dace, darter, and shad. Sport fish that have been documented in the vicinity of the Study Area include bass, catfish, walleye, sauger, and drum (Schainost 2011).

NGPC's 2015 Nebraska fishing guide lists the following fish species as being accessible to anglers in the Study Area fisheries (NGPC 2015):

- Missouri River – freshwater drum, common carp, Northern pike (*Esox lucius*), channel catfish, buffalo (*Ictiobus* spp.), smallmouth bass, paddlefish, crappie (*Pomoxis* sp.), flathead catfish, walleye, sauger
- Bazile Creek – common carp, Northern pike, channel catfish, smallmouth bass, flathead catfish, walleye, sauger
- Lewis and Clark Lake – freshwater drum, common carp, channel catfish, smallmouth bass, white bass (*Morone chrysops*), crappie, walleye, sauger

Mussels

Very little research has been conducted on the mussel population in the 39-Mile District of the MNRR. A study was commissioned by NPS in 2004 and 2005 to provide baseline survey information on the mussel community in the 39-Mile District. No investigations of the mussel community in the 39-Mile District had been conducted prior to this survey.

The 39-Mile District survey examined the Missouri River between Fort Randall Dam near Pickstown and Running Water, South Dakota. The lower 20 miles of the Niobrara River and lower 8 miles of Verdigris Creek in Nebraska are included in the 39-Mile District of the MNRR but were not surveyed during this study. The entire 39-Mile District was traveled by boat. Sandbars, shorelines, tributary confluences, backwaters, and side channels were searched on foot. A total of 59 live mussels and 188 shells (both single valves and matching pairs) were collected at 49 sites during the study, as shown in Table 1. At these sites, a total of seven species were found, with fragile papershell and pink papershell being the most common. The majority of the sites (37 of 49) contained only one or two individual shells. Most sample locations in the upper half of the 39-Mile District (from Fort Randall downstream to Verdel) were largely devoid of mussels. Similarly, areas with an unstable, shifting sand substrate, such as the delta at the Niobrara River, were devoid of mussels. This survey stated that mussel abundance and diversity in this reach was far lower than in the 59-Mile District of the MNRR (Shearer et al. 2005).

Table 1.
Results of the Freshwater Mussel Survey of the 39-Mile District of the MNRR

Common Name	Scientific Name	Number of Live Specimens	Number of Shells
Fragile papershell	<i>Leptodea fragilis</i>	12	78
Giant floater	<i>Pyganodon grandis</i>	7	29
Mapleleaf	<i>Quadrula quadrula</i>	2	4
Paper pondshell	<i>Utterbackia imbecillis</i>	--	2
Pink heelsplitter	<i>Potamilus alatus</i>	1	--
Pink papershell	<i>Potamilus ohioensis</i>	14	41
White heelsplitter	<i>Lasmigona complanata</i>	23	34

Source:

Shearer, Jeff, Doug Backlund, and Stephen K. Wilson. 2005. *Freshwater Mussel Survey of the 39-Mile District - Missouri National Recreational River, South Dakota and Nebraska: Final Report.* November 21. Available online at:
<http://digitalcommons.unl.edu/cgi/viewcontent.cgi?article=1042&context=natrespapers>.

In the summers of 2010 through 2012, researchers from the University of South Dakota (USD) conducted a freshwater invertebrate survey in the Niobrara delta region from the confluence of the Niobrara and Missouri rivers to the upper end of Lewis and Clark Lake (Kerby and Swanson 2013). USD researchers used visual and tactile searches in transects 1 meter wide by 12 meters long to search for mussels at fifteen study sites. Two species of live mussel were found, the white heelsplitter (*Lasmigona complanata*) and the giant floater (*Pyganodon grandis*). However, the survey sites were not ideal for mussels, as the sites contained very fine silt and water with a high sediment load (Kerby and Swanson 2013). Mussels prefer habitats with rocks; pebbles; and coarse, sandy substrates (Perkins and Backlund 2000).

While the above-mentioned mussel species are believed to be beneficial to the overall ecosystem, two invasive mussel species are threats to the existing community: the Asian clam (*Corbicula fluminea*) and the zebra mussel (*Dreissena polymorpha*). Neither species requires a fish host, so larvae can spread much more rapidly than other freshwater species. Asian clams were first introduced to the U.S. in the 1930s and have spread throughout the country. They were first documented in the Missouri River downstream of Gavins Point Dam in 2003 and are now common downstream of the dam. Until recently, there were no documented reports of Asian clams upstream of Gavins Point Dam; however, Grohs (2008) documented finding this species within the Niobrara and Lewis and Clark Lake delta areas during a macroinvertebrate study in 2005 and 2006 within the 39-Mile District of the MNRR adjacent to the Study Area. It is likely that this species is now located in the Fort Randall reach, although not in abundance.

Zebra mussels were first introduced to Lake St. Clair in 1988 and have been extremely destructive to the ecosystems of the Great Lakes. In the case of Lake Erie, nearly all of the native mussel species have been overtaken by zebra mussels. Other infested waters include the Mississippi, Ohio, Illinois, Susquehanna, Tennessee, Arkansas, and Hudson rivers. While zebra mussels have been found in the Missouri River, their population in this system is not yet widespread. Zebra mussel “veligers” were found in the MNRR near the St. Helena boat ramp and near Niobrara in 2003. Because the veliger is the reproductive form of the zebra mussel, this is some indication that there may be reproducing adults in the reach. Although neither of these species was collected in the Missouri River during the 2004 and 2005 mussel survey, (Corps 2008), a single adult zebra mussel was discovered at the Midway boat ramp on Lewis and Clark Lake in November 2014 (SDGFP 2014).

Fisheries and Aquatic Resources Trends

Overall trends in the Missouri River have shown that many native species, such as channel catfish and freshwater drum, have persisted while others, such as Western silvery minnow, Plains minnow (*Hybognathus placitus*), speckled chub (*Macrhybopsis aestivalis*), sturgeon chub (*Macrhybopsis gelida*), sicklefin chub (*Macrhybopsis meeki*), silver chub (*Macrhybopsis storeriana*), flathead chub (*Platygobio gracilis*), and pallid

sturgeon, are in decline (Berry and Young 2004). Hesse et al. (1993) surveyed the Missouri River along the Nebraska border and found that native fish populations within the riverine portions of the Missouri River have declined. Galat et al. (2005) found that populations of 17 species are increasing while 24 species (mostly native) are decreasing. Galat et al. (2005) also found that species richness increased downstream.

Sport-fish trends in Lewis and Clark Lake have been consistently monitored because this area is a popular fishing and recreation area. The general trend for this lake shows an increase in white bass populations, and channel catfish, walleye, and sauger populations have remained relatively stable (Schuckman et al. 2009).

In the vicinity of the Study Area, increased species richness and an increased species diversity were found in the Niobrara River and Lewis and Clark Lake delta regions when compared to these factors within Lewis and Clark Lake (Kaemingk et al. 2007; Schreck 2010). Wanner, Grohs, and Klumb (2011) found that successful spawning of native fish in the Niobrara River likely contributed to recruitment of fish in the Missouri River. Species richness in the Niobrara River was found to be greatest toward the mouth of the Niobrara River and in the delta area and was found to decrease upstream (Wanner et al. 2011).

Very little information was found on mussel trends. Anthony and Downing (2001) found that throughout North America, native mussel species are declining, and 72 percent of native mussels are either extinct, endangered, threatened, or species of concern due to overharvesting. Within the Study Area, Shearer et al. (2005) found the 39-Mile District of the MNRR, including the Niobrara River delta, to be largely devoid of mussels, with a few populations being found between Verdel and the Niobrara River confluence within the main channel of the Missouri River. Shearer et al. also found mussel abundance and diversity in the 39-Mile District to be low when compared with the 59-Mile District of the MNRR (downstream of Gavins Point Dam).

Wildlife

Wildlife is abundant in and along the MNRR as well as the Niobrara National Recreational River and Verdigris Creek National Recreational River primarily because of the varied habitat. The rivers and island complexes provide feeding, resting, and breeding areas for mammals, water birds, reptiles, and amphibians (NPS 2007).

Wildlife species found on the agricultural land in the Study Area are those that feed on crops. Examples are terrestrial species, such as white-tailed deer, rabbits, and mice, and avian species such as crows and pheasants (NGPC 2009). Agricultural land has a low carrying capacity for wildlife.

There are wildlife species that can be found in both emergent and forested wetlands; they include species like crayfish (*Cambarus* spp.), and various species of frogs, snakes and turtles (see the species list in Reptiles and Amphibians, below). However, the presence of wildlife species in wetlands varies due to changes in wetland hydrology

conditions from season to season. Information regarding specific wetland types in the Study Area is provided in the Wetlands and Other Waters of the U.S. Technical Memorandum (see Appendix F).

In 2007, NGPC conducted a roadkill survey along N-12 near Niobrara State Park. The results of this survey identified different types of animals killed between May and August 2007 and give a good representation of wildlife using the surrounding areas. However, this survey was a snapshot of a short period and does not offer a full representation of annual roadkill numbers. Predators and scavengers are also a confounding factor for this survey as it is not possible to know how many roadkill carcasses are removed by predators before they can be detected by surveyors. The wildlife identified in the survey consisted of deer, raccoons, skunks, possums, turtles, and the occasional muskrat or beaver. The majority of the wildlife was found along sections of the road that were surrounded by wetland habitat.

Mammals

A survey of the MNRR conducted by NPS identified 48 species of mammals; any of these species could exist in or near the Study Area. Small mammals, including mice, voles, bats, moles, rats, and ground squirrels, made up roughly 60 percent of these species. Larger mammals contributed an additional 20 percent. Mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), and mountain lions (*Puma concolor*) were the only large mammals identified in the area, with white-tailed deer abundant throughout the Study Area and found throughout the length of the recreational rivers and adjacent bluffs. Mountain lions are listed on the MNRR species list as present within the MNRR boundaries but are cited as being rare. Coyotes, red foxes, and badgers are cited as common. Other small fur-bearing animals include raccoons, minks, weasels, muskrats, opossums, beavers, and rabbits. Bobcats may be present within the MNRR boundaries, although there have been no confirmed reports (NPS 1999). No river otters were confirmed within the MNRR from the NPS mammal survey; however, the 2010/2011 NGPC fur harvester surveys reported confirmed river otter locations along the lower Niobrara River, near the confluence of the Missouri River (Wilson 2011). North American river otters were released on the Niobrara River in 1991 near Merriman, Nebraska, and have since migrated throughout the Niobrara River valley. For additional information regarding this species, see the Protected Species Technical Memorandum (see Appendix E).

Birds

The Missouri River along the northern edge of Knox County is home to 25 year-round resident bird species, 58 species that use the river for nesting, 15 species that are winter residents, 115 species that are spring migrants, and 110 species that are fall migrants (NPS 1999). The Study Area is located within the Central Flyway for the North American continent, which is used by several species of migratory birds. The entire Missouri River ecosystem is a significant pathway for migratory birds, including a number of passerines and birds of prey. Migrating species use the river bottomland, grasslands, and wooded

bluffs, which serve as wintering, feeding, breeding, and staging grounds (NPS 2010). Migratory birds are known to use several sections of the Study Area for nesting, which occurs primarily between April 1 and July 15. For example, migratory birds may nest on bridge structures, such as the N-12 Bazile Creek Bridge. Migratory birds are protected under the MBTA. Common Central Flyway species include spotted sandpiper (*Actitis macularia*), red winged blackbird (*Agelaius phoeniceus*), great blue heron (*Ardea herodias*), Canada goose (*Branta canadensis*), American white pelican (*Pelecanus erythrorhynchos*), double crested cormorant (*Phalacrocorax auritus*), and pied-billed grebe (*Podilymbus podiceps*). Common shorebirds include killdeer (*Charadrius vociferus*), American avocet (*Recurvirostra americana*), interior least tern, and piping plover. Ring-billed gulls (*Larus delawarensis*) and Franklin's gulls (*Larus pipixcan*) are also common (Corps 2004).

The MNRR is home to many birds of prey, including eagles, hawks, vultures, osprey, falcons, and owls. Other species that would be expected along the river include doves, woodpeckers, swallows, blackbirds, and sparrows. The interior least tern, which is federally and state-listed as endangered, and the piping plover, which is federally and state-listed as threatened, nest on open sandbars within the Missouri and Niobrara rivers. Additional information on interior least terns and piping plovers is provided in the Protected Species Technical Memorandum (see Appendix E).

A marsh bird survey was conducted in the summers of 2010 through 2012 by USD in the wetlands and river directly adjacent to the Project, in the Niobrara River delta, and in the Lewis and Clark Lake delta. This survey identified 79 bird species within the wetlands from the Niobrara River confluence to the Lewis and Clark Lake delta (Kerby and Swanson 2013). The following is a sample of species identified in the survey: green heron (*Butorides virescens*), piping plover, yellow billed cuckoo (*Coccyzus americanus*), willow flycatcher (*Empidonax traillii*), American coot (*Fulica americana*), bald eagle, least bittern (*Ixobrychus exilis*), belted kingfisher (*Megaceryle alcyon*), pied-billed grebe, sora (*Porzana carolina*), Virginia rail (*Rallus limicola*), interior least tern, Forster's tern (*Sterna forsteri*), and Bell's vireo (*Vireo bellii*). A complete list of bird species identified during this survey is available in Attachment C.

The bluffs area adjacent to the Missouri River contains areas of woodlands on the steep slopes and in wooded draws, which are home to a variety of tree-nesting bird species. Grasslands and rangeland on the tops of the bluffs provide habitat to grass-nesting birds. A recent monitoring project in prairie and oak savannah areas in Cedar County, Nebraska, conducted by USD, identified the following species as being abundant in these areas: Northern cardinal (*Cardinalis cardinalis*), Eastern wood-pewee (*Contopus virens*), blue jay (*Cyanocitta cristata*), Baltimore oriole (*Icterus galbula*), rose-breasted grosbeak (*Pheucticus ludovicianus*), Eastern towhee (*Pipilo erythrophthalmus*), black capped chickadee (*Poecile atricapilla*), field sparrow (*Spizella pusilla*), house wren (*Troglodytes aedon*), and mourning dove (*Zenaida macroura*) (Benson and Dixon 2009).

Reptiles and Amphibians

A 2003 survey of reptiles and amphibians in the MNRR, including portions of the Study Area, found the following species: northern cricket frog (*Acris crepitans*), Woodhouse's toad (*Bufo woodhousii*), smooth softshell turtle (*Apalone mutica*), six-lined racerunner (*Aspidoscelis sexlineata*), common snapping turtle (*Chelydra serpentina*), painted turtle (*Chrysemys picta*), ringneck snake (*Diadophis punctatus*), western fox snake (*Elaphe vulpina*), false map turtle (*Graptemys pseudogeographica*), eastern hognose snake (*Heterodon platirhinos*), Cope's gray treefrog (*Hyla chrysoscelis*), bullfrog (*Lithobates catesbeiana*), northern leopard frog (*Rana pipiens*), bullsnake (*Pituophis melanoleucus*), western chorus frog (*Pseudacris triseriata*), Plains garter snake (*Thamnophis radix*), common garter snake (*Thamnophis sirtalis*), and racer (*Coluber constrictor*). Species expected but not found during the survey are as follows: tiger salamander (*Ambystoma tigrinum*), spiny softshell turtle (*Apalone spinifera*), Great Plains toad (*Bufo cognatus*), Northern prairie skink (*Eumeces septentrionalis*), western hognose snake (*Heterodon nasicus*), milk snake (*Lampropeltis triangulum*), northern water snake (*Nerodia sipedon*), plains leopard frog (*Rana blairi*), and plains spadefoot toad (*Spea bombifrons*). The reptile and amphibian study also noted that surveys of river islands found only species of frogs, toads, and turtles. During this study, amphibians and reptiles were found in all habitats except the woodlands (Fogell and Cunningham 2005). A study conducted by Keith Perkins and Doug Backlund (2000) found that softshell turtle nests were common on inter-channel sandbars in the Missouri River.

An amphibian and turtle survey was conducted in the summers of 2010 through 2012 by USD within the 39-Mile District of the MNRR in the wetlands and river directly adjacent to the Project, in the Niobrara River delta, and downstream in the Lewis and Clark Lake delta. This survey identified the following amphibian species within the wetlands from the Niobrara River confluence to the Lewis and Clark Lake delta: northern cricket frog, Woodhouse's toad, American bullfrog (*Rana catesbeiana*), northern leopard frog, and boreal chorus frog (*Pseudacris maculata*). Spiny softshell, snapping, painted, and false map were the species of turtles identified during this survey (Kerby and Swanson 2013).

Wildlife Trends

No noted trends in wildlife populations were identified. Wildlife populations in the Study Area are likely changing as habitat changes. As wetland areas increase and riparian forests decrease, bird populations are likely shifting with the habitat change from riparian species to wetland and marsh species.

III. Methodology of Impact Analysis

A. Fisheries

Impacts on fisheries resources would occur mainly within the wetland nursery habitat located in the floodplain with a direct hydrologic connection to the Missouri River and other tributaries. Fisheries resources were evaluated based on aerial photographs and wetland habitat mapping conducted by the Corps (2011)¹. Based on this wetland mapping, there are approximately 4,764 acres of wetland habitat directly connected to the Missouri River from Bazile Creek to Santee, Nebraska (Corps 2011). Additionally, based on the UNL 2005 Land Use Coverage and the NDOR determinations, there are approximately 1,414 acres of wetlands within the Study Area from Ponca Creek downstream to Bazile Creek, which yields a conservative total of approximately 6,100 acres of wetlands between Ponca Creek and Santee, Nebraska.

Effects on fisheries and aquatic resources are based on the overall quantity of wetland habitat impacted as compared to the total amount of wetland habitat located within the Study Area. The acres of wetland habitat that would be permanently impacted within each of the alternatives were calculated using ArcMap computer software and are based on the UNL 2005 Land Use coverage and NDOR wetland determinations. The total area of each habitat type is depicted in Figure 2, above. These calculations were based on the area of permanent impact. Impacts were classified as negligible, minor, moderate, or major based on the following criteria:

- Negligible – less than 5 percent (less than 305 acres) of wetlands would be permanently affected within the Study Area
- Minor – between 5 and 15 percent (between 305 and 915 acres) of wetlands would be permanently affected within the Study Area
- Moderate – between 15 and 25 percent (between 915 and 1,525 acres) of wetlands would be permanently affected within the Study Area
- Major – more than 25 percent (more than 1,525 acres) of wetlands would be permanently affected within the Study Area

These criteria were established using best professional judgment. It is assumed that habitat loss of 25 percent or more would have a major impact on aquatic species because a loss of this size would limit the species ability to find new suitable habitat and recover from the permanent loss of habitat.

B. Wildlife

Wildlife resources were evaluated based on aerial photographs and habitat mapping. Field verification of the land use habitat types was conducted from nearby public roads

¹ While this document was released in 2011 by the Corps, the document does not include data from the Missouri River flooding that occurred in 2011.

in September 2008. Habitat for fish, mammals, birds, reptiles, and amphibians was evaluated based on each species' general associations with the specific habitat types. The number of acres of grassland/rangeland, agriculture and woodland habitat that would be affected by each alternative was determined by overlaying aerial imagery with habitat classifications and then each alternative's ROW limits. Permanent effects on wetland habitat would occur in areas that are permanently filled by the roadway footprint. While not all land types may be converted within ROW (for example woodlands could remain woodlands in the ROW), this analysis conservatively estimates all area within the ROW as a permanent impact. Temporary effects on wildlife habitat would occur in areas that would be returned to their approximate original contour and revegetated following construction, such as staging areas.

Effects on wildlife are based on overall quantity of vegetated habitat type. The area of each habitat type that would be permanently impacted within each of the alternatives was calculated using ArcMap computer software. The total area of each habitat type is depicted in Figure 2, above. Within the Study Area there is a total of 1,687 acres of grassland/rangeland, 1,414 acres of wetlands, 897 acres of woodlands, and 134 acres of agricultural land. The impact calculations are based on the ROW of each alternative. Impacts are classified as negligible, minor, moderate, or major based on the following criteria:

- Negligible – less than 10 percent of any particular habitat type (less than 169 acres of grassland/rangeland, 141 acres of wetlands, 90 acres of woodland or 13 acres of agricultural land) would be permanently affected within the Study Area
- Minor – between 10 and 33 percent of any one particular habitat type (between 169 and 557 acres of grassland/rangeland, between 141 and 467 acres of wetlands, between 90 and 296 acres of woodland, or between 13 and 44 acres of agricultural land) would be permanently affected within the Study Area
- Moderate – between 33 and 66 percent of any one particular habitat type (between 557 and 1,113 acres of grassland/rangeland, between 467 and 933 acres of wetlands, between 296 and 592 acres of woodland or between 44 and 88 acres of agricultural land) would be permanently affected within the Study Area
- Major – more than 66 percent of any one particular habitat type (more than 1,113 acres of grassland/rangeland, more than 933 acres of wetlands, more than 592 acres of woodland, or more than 88 acres of agricultural land) would be permanently affected within the Study Area

Using best professional judgment, habitat loss of 66 percent or more would have a major impact on the wildlife species in the Study Area because although most species are generalists, removing more than 2/3 of their habitat would likely be detrimental to individuals and populations of multiple species due to a large change in habitat availability.

IV. Impact Analysis

A. Fisheries Effects

No-Action Alternative

The No-Action Alternative would result in negligible effects on fish and aquatic species resulting from the existence N-12 or from routine maintenance actions.

Action Alternatives

Each Action Alternative would include improvements to and construction of bridges over Ponca Creek, Harry Miller Creek, and Bazile Creek, as well as a number of other culverts and structures at several drainageways (Appendix B has a detailed list of the culvert sizes and bridge lengths that are proposed for each alternative). Alternatives A1 and A2 would have four bridges in the west segment, with spans ranging in length from 90 feet to 280 feet, and one bridge in the east segment with a 920-foot and 1,020-foot-span for each alternative, respectively. For Alternatives A1 and A2, the bridges at the aforementioned creeks would be on the current alignment across the floodplain of each creek.

Alternatives A3 and A7 would require construction of new bridges and culverts off of the current alignment. For all Action Alternatives, bridge piers would be placed outside of the confines of the channel and would not require channel realignment. Therefore new bridge locations would not impact these waterways. Alternative A3 would have five bridges along the west segment with spans ranging from 150 feet to 300 feet, and one bridge along the east segment with a 1020-foot-span. Alternative A7 would have eight bridges along the west segment, ranging in length from 150-foot-spans to 950-foot-spans. The east segment of A7 would have six bridges, with spans ranging in length from 525 feet to 1,400 feet. Alternative A7 would involve constructing 1.8 miles of bridges over several sections of the roadway along the base of the bluffs. These alternatives would require that additional piers be placed in wetland areas, but would increase connectivity under the roadway.

Most of the culverts proposed for the Action Alternatives are single, twin, triple and quad concrete box culverts that range in width from 5 feet to 14 feet (see Appendix B). These structures would remain on the current alignment for Alternative A1. However, due to the raising of the existing alignment under Alternative A1, new culverts would need to be lengthened and sized for hydraulic capacity. Some channel realignment and consequential fill of wetlands would be needed at various locations as the new roadway embankment would affect the current flow patterns. Alternatives A2 and A3 would require widened and raised structures to be constructed off alignment, requiring some channel realignment and consequential fill of wetlands. The improved bridges and additional culverts would allow for greater opportunity for fish passage and habitat connectivity as compared to current conditions.

Each Action Alternative would impact between 91 and 147 acres of floodplain wetland fisheries habitat, although these impacts would be considered negligible based on the amount of impacts compared to the total amount of wetlands located within the Study Area (that is, these impacts are less 5 percent of what is available). Due to the type and nature of the fisheries located in the Missouri River floodplain wetlands, which include mostly very small and mobile species, such as minnows and macroinvertebrates, all of the Action Alternatives' impacts on fish and other aquatic species in this habitat would be negligible. See Table 2, below, for impacts on wetland habitat.

According to the analysis of effects of the Action Alternatives on water quality (see the Draft EIS, Chapter 4), all alternatives would have a negligible effect on water quality and would therefore have a negligible effect on aquatic habitat as it relates to water quality. [40 CFR 230.31, Fish, Crustaceans, Mollusks, and Other Aquatic Organisms in the Food Web]

Fragmentation of wetlands or a change in wetland hydrology could lead to indirect effects of the Action Alternatives on fish and aquatic resources. While there would be some localized fragmentation of wetlands under Alternatives A1 and A2, impacts would occur in areas where fragmentation already exists. For Alternatives A3 and A7, while new areas of localized fragmentation may occur, the subsequent removal of the existing roadway would decrease existing fragmentation. Fragmentation under Alternative A7 is minimized further due to the increased number and length of bridges incorporated into the design.

Habitat fragmentation may also occur when portions of a natural channel are placed within a culvert (Appendix B provides details of the number and lengths of culverts). Culvert lengths are increasing under each Action Alternative compared to the existing condition. Culverts are already in place in Alternative A1 and A2. Under Alternative A3 and A7, while new areas of natural channel would be placed in a culvert, the removal of existing culverts associated with the removal of the existing roadway would also occur.

At a larger floodplain scale, the wetlands may have increased function under all Action Alternatives due to increased connection from more and larger culverts, or in the case of Alternatives A3 and A7, removal of the existing roadway. None of the Action Alternatives would alter wetland hydrology within the floodplain (see Chapter 4 in the Draft EIS). The mortality impacts from road runoff (for example, deicing sand/salt mixes) are anticipated to be similar to existing conditions.

B. Wildlife Effects

No-Action Alternative

The No-Action Alternative would result in negligible effects on fish and wildlife resulting from the existence of N-12 or from routine maintenance actions. Vehicle-wildlife collisions would likely continue due to a lack of connectivity under the roadway.

Action Alternatives

Each of the Action Alternatives would have negligible impacts on woodland, and grassland/rangeland, and wetland habitat and therefore would have negligible impacts on the wildlife that use these habitats. Alternatives A3 and A7 would have a minor impact on agricultural habitat. Table 2 describes the acres of each habitat type impacted by segment and alternative; Figures 3a and 3b illustrate land use that would be impacted within each alternative's permanent area of impact.

Each Action Alternative would provide wider bridges and culverts than those in the existing roadway, allowing for increased wildlife habitat connectivity on either side of N-12 (Appendix B has a detailed list of the existing drainage structures and those proposed for each Action Alternative). Most of the culverts proposed for the Action Alternatives are single, twin, triple and quad concrete box culverts that range in width from 5 feet to 14 feet. Alternatives A1 and A2 would have four bridges in the west segment, with spans ranging in length from 90 feet to 280 feet, and one bridge in the east segment with a 920-foot and 1,020-foot-span for each alternative, respectively. Alternative A3 would have five bridges along the west segment with spans ranging from 150 feet to 300 feet, and one bridge along the east segment with a 1020-foot-span. Alternative A7 would have eight bridges along the west segment, ranging in length from 150-foot-spans to 950-foot-spans. The east segment of A7 would have six bridges, with spans ranging in length from 525 feet to 1,400 feet.

Compared to existing conditions, Alternatives A3 and A7, which would both be located on the same alignment, would have beneficial impacts on small mammals and reptiles as these alternatives would provide increased connectivity to either side of the N-12 roadway and would remove the existing roadway in the floodplain. Alternative A7 would have additional beneficial impacts on wildlife because this alternative would have more bridges and would provide better connectivity under the roadway for larger mammals than does the existing roadway. Both Alternatives A3 and A7 would be constructed along the base of the bluffs and would result in segments of a new transportation corridor stretching through habitats where there is currently no roadway. Bashore, Tzilkowski, and Bellis (1985) found that across several years, vehicle deer collisions occurred around specific sites and that woodland-field/grassland interfaces were areas of extremely high vehicle-deer collisions. Alternatives A3 and A7 would further bisect woodland bluff habitat, floodplain wetland, agricultural field, and grassland habitat, increasing edge effects and potentially increasing vehicle-deer collisions. However, Alternative A7 may allow increased passage under its bridges.

Studies have documented that traffic noise does affect wildlife negatively; negative effects include hearing loss, increase in stress hormones, altered behaviors, interference with communication during breeding activities, differential sensitivity to different frequencies, and deleterious effects on food supply or other habitat attribute (Forman and Alexander 1998). However, the effect of any of the alternatives is likely to be the same as existing conditions because a new roadway is not anticipated to increase the



number of cars that travel through the Study Area and because all of the Action Alternatives are occurring in the floodplain.

Table 2
Impacts of Alternatives on Wildlife Habitat (Acres)

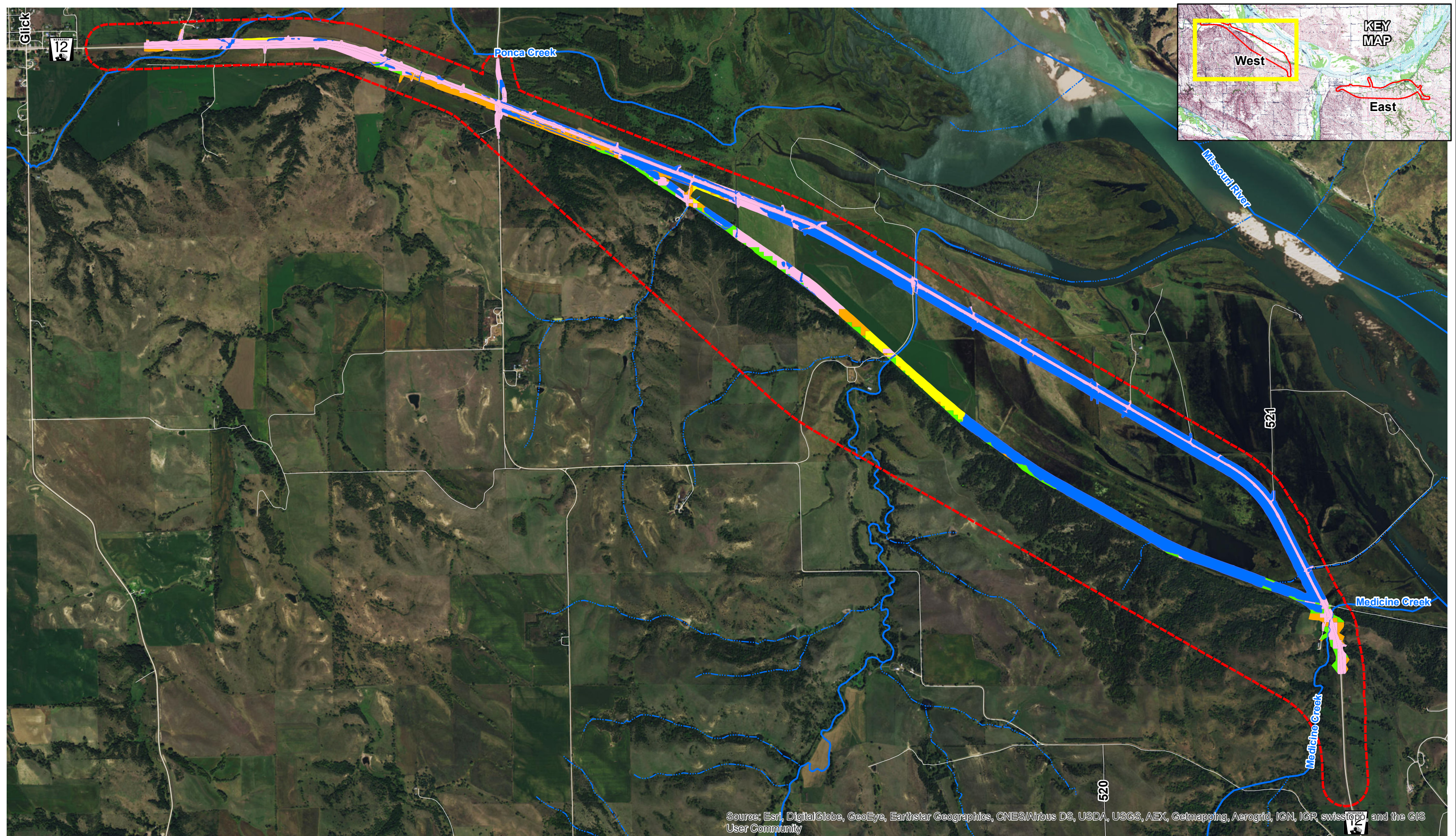
Habitat Type	Alternative A1			Alternative A2			Alternative A3			Alternative A7		
	West	East	Total	West	East	Total	West	East	Total	West	East	Total
Agricultural ¹	1	1	2	1	5	6	15	8	23	15	8	23
Woodland ²	4	4	8	2	12	14	35	32	67	35	32	67
Grassland/ Rangeland ³	4	10	14	5	16	21	13	43	56	13	43	56
Wetlands & Open Water ⁴	72	75	147	71	71	142	57	65	122	45	46	91

Notes:

- ¹ For this analysis, non-wetlands used for crop production are reported separately as agricultural land. Habitat impacts were calculated using the area in the proposed right-of-way (ROW) that is outside of existing ROW.
- ² Woodland, also referred to as forestland, is defined as a land cover or use that is “at least 10 percent stocked by single stemmed woody species of any size which will be at least 4 meters (13 feet) tall at maturity” (USDA NRCS 2009). Habitat impacts were calculated using the area in the proposed ROW that is outside of existing ROW.
- ³ Rangeland is defined as a land cover or use in which “the climax or potential plant cover is composed principally of native grasses, grasslike plants, forbs or shrubs suitable for grazing and browsing” (USDA NRCS 2009). Habitat impacts were calculated using the area in the proposed ROW that is outside of existing ROW.
- ⁴ For information regarding impacts on specific wetland types, see Section 4.5, Wetlands and Other Waters of the U.S., of the Draft EIS. Habitat impacts were calculated using the area of permanent impact.

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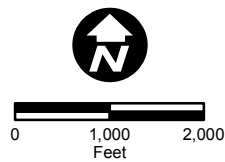


Legend

- Waterway
- Road
- Study Area

Land Use Within Permanent Area of Impact

- Agriculture
- Open Water / Wetlands
- Range, Pasture, Grass
- Road/Built Up
- Woodland



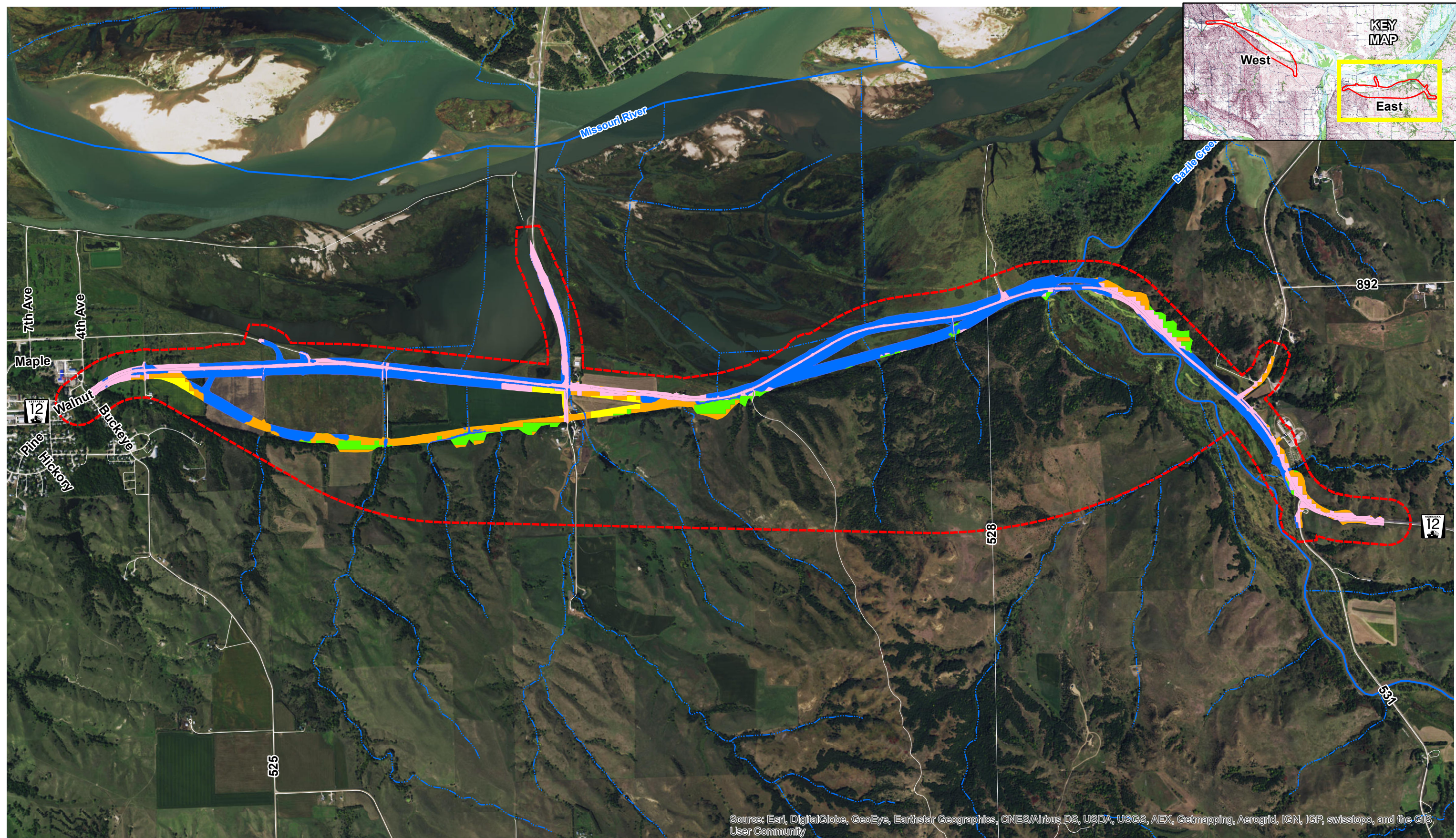
Land Use and Wildlife Habitat
West Segment
N-12 Niobrara East and West
Knox County, Nebraska
Environmental Impact Statement



DATE
October 2015

FIGURE
3a

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Legend

- Waterway
- Road
- Study Area

Land Use Within Permanent Area of Impact

- Agriculture
- Open Water / Wetlands
- Range, Pasture, Grass
- Road/Built Up
- Woodland



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Feet

Land Use and Wildlife Habitat
East Segment
N-12 Niobrara East and West
Knox County, Nebraska
Environmental Impact Statement



DATE

October 2015

FIGURE

3b

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ATTACHMENT A

NEBRASKA TIER I AND TIER II AT-RISK SPECIES

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Tier I At-risk Species

Birds

Baird's Sparrow
 Bell's Vireo
 Brewer's Sparrow
 Buff-breasted Sandpiper
 Burrowing Owl
 Cerulean Warbler
 Chestnut-collared Longspur
 Ferruginous Hawk
 Greater Prairie-Chicken
 Henslow's Sparrow
 Interior Least Tern
 Loggerhead Shrike
 Long-billed Curlew
 McCown's Longspur
 Mountain Plover
 Pinyon Jay
 Piping Plover
 Short-eared Owl
 Sprague's Pipit
 Trumpeter Swan
 Whooping Crane
 Wood Thrush

Fish

Blacknose Shiner
 Blue Sucker
 Finescale Dace
 Lake Sturgeon
 Northern Redbelly Dace
 Pallid Sturgeon
 Plains Topminnow
 Sicklefin Chub
 Sturgeon Chub
 Topeka Shiner

Insects

American Burying Beetle
 Bucholz Black Dash
 Colorado Rita Dotted-blue
 Ghost Tiger Beetle
 Iowa Skipper
 Married Underwing
 Mottled Duskywing
 Nine-spotted Ladybird Beetle
 Ottoe Skipper
 Platte River Caddisfly
 Regal Fritillary
 Salt Creek Tiger Beetle
 Tawny Crescent
 Whitney Underwing

Mammals

Bailey's Eastern Woodrat
 Cheyenne Northern Pocket Gopher
 Fringe-tailed Myotis
 Northern River Otter
 Pierre Northern Pocket Gopher
 Plains Harvest Mouse
 Plains Pocket Mouse
 Rocky Mountain Bighorn Sheep
 Southern Flying Squirrel
 Swift Fox

Mollusks

Flat Floater
 Higgins Eye
 Pimpleback
 Pistolgrip
 Plain Pocketbook
 Scaleshell

Reptiles

Blanding's Turtle
 Massasauga
 Sagebrush Lizard
 Timber Rattlesnake

Plants

American Ginseng
 Barr's Milkvetch
 Blowout Penstemon
 Colorado Butterfly Plant
 Dog-parsley
 Gordon's Wild Buckwheat
 Hall's Bulrush
 Large-spike Prairie-clover
 Matted Prickly-phlox
 Meadow Lousewort
 Missouri Sedge
 Nodding-pogonia
 Platte River Dodder
 Prairie Moonwort
 Rocky Mountain Bulrush
 Saltwort
 Sandhill Goosefoot
 Short's Milkvetch
 Small White Lady's-slipper
 Snow Trillium
 Ute Ladies'-tresses
 Western Prairie Fringed Orchid
 Wolf's Spikerush

Appendix 9: Tier II at-risk species.

Tier II species include those that did not meet the Tier I criteria but were ranked by the Nebraska Natural Heritage Program as either State Critically Imperiled (S1), State Imperiled (S2) or State Vulnerable (S3) (see appendix 4 for explanation of ranks). Because of the large number of at-risk plant species, only those species listed as S1 or S2 are included in the following list. The Tier II list is used to help prioritize conservation planning/actions and does not have legal or regulatory ramifications. Tier II species are typically those that are not at-risk from a global or national perspective but are rare or imperiled within Nebraska. Conservation of these species is needed to ensure they remain a part of Nebraska's flora and fauna.

During the development of the Nebraska Natural Legacy Project, the "S-Ranks" were reviewed and revised for amphibians, birds, mammals, fish, reptiles, mollusks, plants and a limited number of insects.

The Tier II at-risk species lists will be periodically reviewed and revised by taxon experts. This revision will occur on an on-going basis as new information on the abundance, distribution, and population trends becomes available, with an overall review at least every five years. The Tier II list was reviewed and revised with input from taxon experts in workshops held in 2010.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Amphibians			
American Toad	<i>Anaxyrus americanus</i>	G5	S1
Great Plains Narrowmouth Toad	<i>Gastrophryne olivacea</i>	G5	S2
Smallmouth Salamander	<i>Ambystoma texanum</i>	G5	S1
Birds			
Acadian Flycatcher	<i>Empidonax vireescens</i>	G5	S2?
American Wigeon	<i>Anas americana</i>	G5	S2
American Woodcock	<i>Scolopax minor</i>	G5	S3
Bald Eagle	<i>Haliaeetus leucocephalus</i>	G5	S3
Barn Owl	<i>Tyto alba</i>	G5	S3
Black-and-white Warbler	<i>Mniotilta varia</i>	G5	S3
Black-billed Magpie	<i>Pica hudsonia</i>	G5	S3
Black-crowned Night-Heron	<i>Nycticorax nycticorax</i>	G5	S3
Black-necked Stilt	<i>Himantopus mexicanus</i>	G5	S3
Black Tern	<i>Chlidonias niger</i>	G4	S3
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	G5	S2
Brown Creeper	<i>Certhia americana</i>	G5	S2
Canvasback	<i>Aythya valisineria</i>	G5	S3
Carolina Wren	<i>Thryothorus ludovicianus</i>	G5	S2
Cassin's Kingbird	<i>Tyrannus vociferans</i>	G5	S3
Cassin's Sparrow	<i>Aimophila cassinii</i>	G5	S3
Chuck-will's-widow	<i>Caprimulgus carolinensis</i>	G5	S1
Cinnamon Teal	<i>Anas cyanoptera</i>	G5	S1S2
Clark's Grebe	<i>Aechmophorus clarkii</i>	G5	S2
Clark's Nutcracker	<i>Nucifraga columbiana</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	G5	S1
Dark-eyed Junco	<i>Junco hyemalis</i>	G5	S1
Forster's Tern	<i>Sterna forsteri</i>	G5	S3
Golden Eagle	<i>Aquila chrysaetos</i>	G5	S3
Kentucky Warbler	<i>Oporornis formosus</i>	G5	S3
King Rail	<i>Rallus elegans</i>	G4	S1
Lesser Scaup	<i>Aythya affinis</i>	G5	S3
Lewis's Woodpecker	<i>Melanerpes lewis</i>	G4	S1
Louisiana Waterthrush	<i>Parkesia motacilla</i>	G5	S1
Merlin	<i>Falco columbarius</i>	G5	S1
Mississippi Kite	<i>Ictinia mississippiensis</i>	G5	S1
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	G5	SNR
Peregrine Falcon	<i>Falco peregrinus</i>	G4	S3
Pileated Woodpecker	<i>Dryocopus pileatus</i>	G5	S1
Pine Siskin	<i>Spinus pinus</i>	G5	S3
Plumbeous Vireo	<i>Vireo plumbeus</i>	G5	S2
Prairie Falcon	<i>Falco mexicanus</i>	G5	S1
Prothonotary Warbler	<i>Protonotaria citrea</i>	G5	S2
Pygmy Nuthatch	<i>Sitta pygmaea</i>	G5	S3
Red-shouldered Hawk	<i>Buteo lineatus</i>	G5	S1
Ruby-throated Hummingbird	<i>Archilochus colubris</i>	G5	S3
Savannah Sparrow	<i>Passerculus sandwichensis</i>	G5	S3
Sandhill Crane	<i>Grus canadensis</i>	G5	S3
Scissor-tailed Flycatcher	<i>Tyrannus forficatus</i>	G5	S3
Sedge Wren	<i>Cistothorus platensis</i>	G5	S3
Sharp-shinned Hawk	<i>Accipiter striatus</i>	G5	S1
Snowy Plover	<i>Charadrius nivosus</i>	G4	S1
Summer Tanager	<i>Piranga rubra</i>	G5	S4
Swainson's Hawk	<i>Buteo swainsoni</i>	G5	S3
Swamp Sparrow	<i>Melospiza georgiana</i>	G5	S3
Townsend's Solitaire	<i>Myadestes townsendi</i>	G5	S2
Tufted Titmouse	<i>Baeolophus bicolor</i>	G5	S3
Violet-green Swallow	<i>Tachycineta thalassina</i>	G5	S3
Western Grebe	<i>Aechmophorus occidentalis</i>	G5	S3
Whip-poor-will	<i>Caprimulgus vociferus</i>	G5	S3
White-eyed Vireo	<i>Vireo griseus</i>	G5	S2
White-faced Ibis	<i>Plegadis chihi</i>	G5	S3
White-throated Swift	<i>Aeronautes saxatalis</i>	G5	S3
Wilson's Snipe	<i>Gallinago delicata</i>	G5	S2
Yellow-throated Vireo	<i>Vireo flavifrons</i>	G5	S3
Yellow-throated Warbler	<i>Dendroica dominica</i>	G5	S1
Fish			
American Eel	<i>Anguilla rostrata</i>	G4	SNR
Black Buffalo	<i>Ictiobus niger</i>	G5	S2
Blacknose Dace	<i>Rhinichthys atratulus</i>	G5	S2
Blackside Darter	<i>Percina maculata</i>	G5	S1
Bluntnose Minnow	<i>Pimephales notatus</i>	G5	S3
Bowfin	<i>Amia calva</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Burbot	<i>Lota lota</i>	G5	S1
Chestnut Lamprey	<i>Ichthyomyzon castaneus</i>	G4	S1
Common Shiner	<i>Luxilus cornutus</i>	G5	S2
Flathead Chub	<i>Platygobio gracilis</i>	G5	S5
Lake Chub	<i>Couesius plumbeus</i>	G5	S1
Paddlefish	<i>Polyodon spathula</i>	G4	S2
Pearl Dace	<i>Margariscus margarita</i>	G5	S3
Plains Minnow	<i>Hybognathus placitus</i>	G4	S4
Silver Lamprey	<i>Ichthyomyzon unicuspis</i>	G5	S1
Tadpole Madtom	<i>Noturus gyrinus</i>	G5	S3
Trout-Perch	<i>Percopsis omiscomaycus</i>	G5	S1
Western Silvery Minnow	<i>Hybognathus argyritis</i>	G4	S?

Mammals

Black-tailed Jackrabbit	<i>Lepus californicus</i>	G5	S?
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>	G5	S3
Dwarf Shrew	<i>Sorex nanus</i>	G4	S1
Eastern Chipmunk	<i>Tamias striatus</i>	G5	S1
Eastern Gray Squirrel	<i>Sciurus carolinensis</i>	G5	S3
Eastern Pipistrelle	<i>Pipistrellus subflavus</i>	G5	S1
Eastern Spotted Skunk	<i>Spilogale putorius</i>	G5	S1
Eastern Woodrat	<i>Neotoma floridana</i>	G5	S3
Evening Bat	<i>Nycticeius humeralis</i>	G5	S3
Hispid Cotton Rat	<i>Sigmodon hispidus</i>	G5	S3
Least Chipmunk	<i>Tamias minimus</i>	G5	S3
Long-legged Myotis	<i>Myotis volans</i>	G5	S1
Long-tailed Weasel	<i>Mustela frenata</i>	G5	S2
Merriam's Shrew	<i>Sorex merriami</i>	G5	S1
Mountain Lion	<i>Felis concolor</i>	G5	S1
Northern Myotis	<i>Myotis septentrionalis</i>	G4	S3
Olive-backed Pocket Mouse	<i>Perognathus fasciatus</i>	G5	S3
Silky Pocket Mouse	<i>Perognathus flavus</i>	G5	S?
Townsend's Big-eared Bat	<i>Corynorhinus townsendii</i>	G4	S1
White-tailed Jackrabbit	<i>Lepus townsendii</i>	G5	S?
Woodland Vole	<i>Microtus pinetorum</i>	G5	S3

Reptiles

Copperhead	<i>Agkistrodon contortrix</i>	G5	S2
Eastern Glossy Snake	<i>Arizona elegans</i>	G5	S1
Eastern Hognose Snake	<i>Heterodon platirhinos</i>	G5	S2?
Five-lined Skink	<i>Eumeces fasciatus</i>	G5	S1
Graham's Crayfish Snake	<i>Regina grahamii</i>	G5	S2
Mountain Short-horned Lizard	<i>Phrynosoma hernandesi</i>	G5	S3
Plains Blackhead Snake	<i>Tantilla nigriceps</i>	G5	S1
Prairie Kingsnake	<i>Lampropeltis calligaster</i>	G5	S2
Redbelly Snake	<i>Storeria occipitomaculata</i>	G5	S2
Red-eared Slider	<i>Trachemys scripta elegans</i>	G5T5	S?

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Slender Glass Lizard	<i>Ophisaurus attenuatus</i>	G5	S1
Smooth Green Snake	<i>Liophorophis vernalis</i>	G5	S1
Smooth Soft-shelled Turtle	<i>Apalone mutica</i>	G5	S3?
Speckled Kingsnake	<i>Lampropeltis holbrooki</i>	G5	S1
Terrestrial Garter Snake	<i>Thamnophis elegans</i>	G5	S2?
Western Ribbon Snake	<i>Thamnophis proximus</i>	G5	S2
Western Worm Snake	<i>Carphophis vermis</i>	G5	S2

Insects

A Grasshopper	<i>Encoptolophus subgracilis</i>	G5	S1
A Mayfly	<i>Apobaetis lakota</i>	G2G3	SNR
A Mayfly	<i>Paraleptophlebia gregalis</i>	G3G4	SNR
A Mayfly	<i>Brachycercus nasutus</i>	G3G4	SNR
A Mayfly	<i>Cercobranchys fox</i>	G3G4	SNR
A Scarab Beetle	<i>Rhyssalus neglectus</i>	GNR	S1
A Stonefly	<i>Perlesta golconda</i>	G2G3	SNR
Acadian Hairstreak	<i>Satyrrium acadicum</i>	G5	S3
Acastus Checkerspot	<i>Chlosyne acastus</i>	G4G5	S1
Afranius Duskywing	<i>Erynnis afranius</i>	G5	S2
American Copper	<i>Lycaena phlaeas</i>	G5	S1S2
Anicia Checkerspot	<i>Euphydryas anicia</i>	G5	S3
Anise Swallowtail	<i>Papilio zelicaon</i>	G5	S3
Aphrodite Fritillary	<i>Speyeria aphrodite</i>	G5	S3
Arachne Checkerspot	<i>Poladryas arachne arachne</i>	G5TNR	S1
Arogos Skipper	<i>Atrytone arogos</i>	G3	S1S2
Arrowhead Blue	<i>Glaucopsyche piasus</i>	G5	S1
Badlands Tiger Beetle	<i>Cicindela decemnotata</i>	G4	SNR
Banded Hairstreak	<i>Satyrrium calanus</i>	G5	S2S3
Beautiful Tiger Beetle	<i>Cicindela pulchra</i>	G4	S1
Broad-winged Skipper	<i>Poanes viator viator</i>	G5T4	S2
Byssus Skipper	<i>Problema byssus kumskaka</i>	G3G4	S1
Callippe Fritillary	<i>Speyeria callippe</i>	G5	S1
Cobweb Skipper	<i>Hesperia metea</i>	G4G5	S1
Common Branded Skipper	<i>Hesperia colorado</i>	G5	S3
Coral Hairstreak	<i>Satyrrium titus</i>	G5	S3
Coronis Fritillary	<i>Speyeria coronis</i>	G5	S3
Creamy Marblewing	<i>Euchloe ausonides palaeoreios</i>	G5TNR	S1
Creeping Water Bug	<i>Ambrysus mormon</i>	GNR	S2
Crossline Skipper	<i>Polites origenes</i>	G5	S3
Delaware Skipper	<i>Atrytone logan</i>	G5	S3
Delilah Underwing	<i>Catocala delilah</i>	G3G4	SNR
Desert Forktail	<i>Ischnura barberi</i>	G4	S1
Dion Skipper	<i>Euphyes dion</i>	G4	S2
Dogface	<i>Colias cesonia</i>	G5	S3
Dotted Blue	<i>Euphilotes ancilla</i>	G5	S1S2
Dun Skipper	<i>Euphyes vestris</i>	G5	S3
Dusted Skipper	<i>Atrytonopsis hianna</i>	G4G5	S3
Elusive Clubtail	<i>Gomphus notatus</i>	G3	SNR

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Field Crescentspot	<i>Phyciodes pratensis</i>	G5	S1
Fiery Skipper	<i>Hylephila phyleus</i>	G5	S3
Fulvia Checkerspot	<i>Thessalia fulvia</i>	G5	S2S3
Garita Skipperling	<i>Oarisma garita</i>	G5	S2
Gray Comma	<i>Polygonia progne</i>	G4G5	S3
Great Plains Giant Tiger Beetle	<i>Amblycheila cylindriformis</i>	G4G5	S1
Green Skipper	<i>Hesperia viridis</i>	G5	S1
Greenish Blue	<i>Plebejus saepiolus</i>	G5	S1
Grizzly Spur-throat Grasshopper	<i>Melanoplus punctulatus</i>	G4	S1
Habilis Underwing	<i>Catocala habilis</i>	G5	S1
Hairy Duskywing	<i>Erynnis persius fredericki</i>	G5TNR	S2
Harvester	<i>Feniseca tarquinius</i>	G4	S2
Henry's Elfin	<i>Incisalia henrici</i>	G5	S2
Hickory Hairstreak	<i>Satyrrium caryaevorum</i>	G4	S1S2
Hoary Edge	<i>Achalarus lyciades</i>	G5	S1
Hobomok Skipper	<i>Poanes hobomok</i>	G5	S3S4
Horace's Duskywing	<i>Erynnis horatius</i>	G5	S3
Indra Swallowtail	<i>Papilio indra</i>	G5	S1S2
Juvenal's Duskywing	<i>Erynnis juvenalis</i>	G5	S2S3
Large Heath	<i>Coenonympha tullia</i>	G5	S2
Little Glassywing	<i>Pompeius verna</i>	G5	S3
Long Dash	<i>Polites mystic</i>	G5	S3
Mead's Wood Nymph	<i>Cercyonis meadii</i>	G5	S1
Milbert's Tortoiseshell	<i>Nymphalis milberti</i>	G5	S3
Mormon Fritillary	<i>Speyeria mormonia kimemela</i>	G5	S1
Mulberry Wing	<i>Poanes massasoit</i>	G4	S?
Mylitta Crescent	<i>Phyciodes mylitta</i>	G5	S1
Northern Broken Dash	<i>Wallengrenia egeremet</i>	G5	S3
Northern Crescent	<i>Phyciodes cocyta</i>	G5	S1S2
Northern Pearlyeye	<i>Enodia anthedon</i>	G5	S3
Olive Hairstreak	<i>Mitoura grynea</i>	G5	S3
Orange Roadside Skipper	<i>Amblyscirtes simius</i>	G4	S1
Oslar's Roadside Skipper	<i>Amblyscirtes oslari</i>	G4	S2
Pahaska Skipper	<i>Hesperia pahaska</i>	G5	S2
Painted Crescentspot	<i>Phyciodes pictus</i>	G5	S2
Pallid Crescentspot	<i>Phyciodes pallidus</i>	G5	S1
Pawnee Stone	<i>Perlesta xube</i>	G2	S2?
Phoebus' Parnassian	<i>Parnassius smintheus</i>	G5	S1
Plains Gray Skipper	<i>Polites rhesus</i>	G4	S2
Prairie Long-lipped Tiger Beetle	<i>Cicindela nebraskana</i>	G4	S1
Purplish Copper	<i>Lycaena helloides</i>	G5	S3
Queen Alexandra's Sulphur	<i>Colias alexandra</i>	G5	S3
Residua Underwing	<i>Catocala residua</i>	G5	S1
Riding's Satyr	<i>Neominois ridingsii</i>	G5	S2
Robinson's Underwing	<i>Catocala robinsoni</i>	G4	S1
Ruddy Copper	<i>Lycaena rubida</i>	G5	S3
Salt Creek Grasshopper	<i>Trimerotropis salina</i>	G5	S2?
Scalloped Sootywing	<i>Staphylus hayhurstii</i>	G5	S3
Serene Underwing	<i>Catocala serena</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Shasta Blue	<i>Icaricia shasta</i>	G5	S2
Silver-bordered Fritillary	<i>Boloria selene</i>	G5	S2
Silvery Blue	<i>Glaucopsyche lygdamus</i>	G5	S3
Silvery Checkerspot	<i>Chlosyne nycteis</i>	G5	S3
Sleepy Duskywing	<i>Erynnis brizo</i>	G5	S2
Sleepy Orange	<i>Eurema nicippe</i>	G5	S2N
Small Wood Nymph	<i>Cercyonis oetus</i>	G5	S1
Smoky-eyed Brown	<i>Satyrodes eurydice fumosa</i>	G5T3T4	S3
Southern Cloudywing	<i>Thorybes bathyllus</i>	G5	S2
Strecker's Giant Skipper	<i>Megathymus streckeri</i>	G5	S3
Striped Hairstreak	<i>Satyrrium liparops</i>	G5	S2
Tawny Emperor	<i>Asterocampa clyton</i>	G5	S2S3
Taxiles Skipper	<i>Poanes taxiles</i>	G5	S2S3
Uhler's Arctic	<i>Oeneis uhleri</i>	G5	S3
Uncas Skipper	<i>Hesperia uncas</i>	G5	S2
Weidemeyer's Admiral	<i>Limenitis weidemeyerii</i>	G5	S3
Western Black Swallowtail	<i>Papilio bairdii</i>	G5T5	S3
Western Green Hairstreak	<i>Callophrys affinis homoperplexa</i>	G5TNR	S1S2
Western Tailed Blue	<i>Everes amyntula</i>	G5	S1
Western White	<i>Pontia occidentalis</i>	G5	S2
White-cloaked Tiger Beetle	<i>Cicindela togata</i>	G5	S1
Widow Underwing	<i>Catocala vidua</i>	G5	S1
Wild Indigo Duskywing	<i>Erynnis baptisiae</i>	G5	S3
Yellow-grey Underwing	<i>Catocala luctuosa</i>	G4	S1
Yucca Skipper	<i>Megathymus yuccae coloradensis</i>	G5T5	S3S4
Zabulon Skipper	<i>Poanes zabulon</i>	G5	S2
Zebra Swallowtail	<i>Eurytides marcellus</i>	G5	S3
Zerene Fritillary	<i>Speyeria zerene</i>	G5	S1S2

Mollusks

A Freshwater Snail	<i>Fossaria techella</i>	G3G4	SNR
Black Sandshell	<i>Ligumia recta</i>	G5	SNR
Fatmucket	<i>Lampsilis siliquioidea</i>	G5	SNR
Niobrara Ambersnail	<i>Oxyloma haydeni</i>	G3	SNR
Pondmussel	<i>Ligumia subrostrata</i>	G5	S1
Threeridge	<i>Amblema plicata</i>	G5	SNR
Wabash Pigtoe	<i>Fusconaia flava</i>	G5	SNR
Yellow Sandshell	<i>Lampsilis teres</i>	G5	SNR

Plants

Alkali Blite	<i>Chenopodium rubrum</i> var. <i>humile</i>	G5T5	S1
Alyssum-leaf Phlox	<i>Phlox alyssifolia</i>	G5	S1
American Dragon's-head	<i>Dracocephalum parviflorum</i>	G5	S1
American Eelgrass	<i>Vallisneria americana</i>	G5	S1
American False-pennyroyal	<i>Hedeoma pulegioides</i>	G5	S1
American Lotus	<i>Nelumbo lutea</i>	G4	S1S3
American Pillwort	<i>Pilularia americana</i>	G5	S1

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American Sweetflag	<i>Acorus americanus</i>	G5	S2
Antelope-Horns	<i>Asclepias asperula</i> var. <i>decumbens</i>	G5TNRS1	
Arrowfeather Three-awn	<i>Aristida purpurascens</i> var. <i>purpurascens</i>	G5T5	S1
Ashy Sunflower	<i>Helianthus mollis</i>	G4G5	S1
Autumn Coral-root	<i>Corallorhiza odontorhiza</i> var. <i>odontorhiza</i>	G5	S1S3
Awned Slender Wheatgrass	<i>Elymus trachycaulus</i> var. <i>andinus</i>	G5T5	S1
Bay Forget-me-not	<i>Myosotis laxa</i>	G5	S1
Beaked Spikerush	<i>Eleocharis rostellata</i>	G5	S1
Bearberry	<i>Arctostaphylos uva-ursi</i>	G5	S1
Bearded Short-husk	<i>Brachyelytrum erectum</i>	G5	S2
Bebb's Sedge	<i>Carex bebbii</i>	G5	S1S3
Berlandier's Flax	<i>Linum berlandieri</i> var. <i>berlandieri</i>	G5T5?	S1
Big-fruit Dodder	<i>Cuscuta umbrosa</i>	G5	S1S3
Bigroot Morning-glory	<i>Ipomoea pandurata</i>	G5	S1
Birdfoot Violet	<i>Viola pedata</i> var. <i>pedata</i>	G5TNRS1	
Black-foot Quillwort	<i>Isoetes melanopoda</i> ssp. <i>melanopoda</i>	G5TNRS1	
Blackjack Oak	<i>Quercus marilandica</i> var. <i>marilandica</i>	G5T4T5S1	
Black-seed Ricegrass	<i>Piptatherum racemosum</i>	G5	S2
Blue Cohosh	<i>Caulophyllum thalictroides</i>	G4G5	S1
Blue Larkspur	<i>Delphinium nuttallianum</i>	G5	S1
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i>	G5	S1
Bodin's Milk-vetch	<i>Astragalus bodinii</i>	G4	S1
Bog Rush	<i>Juncus biflorus</i>	G5	S1
Bog White Violet	<i>Viola lanceolata</i> var. <i>lanceolata</i>	G5T5	S2
Bouquet Mud-plantain	<i>Heteranthera multiflora</i>	G4	S1
Branched Noseburn	<i>Tragia ramosa</i>	G5	S1
Brazilian Watermeal	<i>Wolffia brasiliensis</i>	G5	S1
Britton's Skullcap	<i>Scutellaria brittonii</i>	G4G5	S2
Broad-leaf Milkweed	<i>Asclepias latifolia</i>	G5	S1S3
Broad-leaf Spring-Panicum	<i>Dichanthelium latifolium</i>	G5	S1
Broom Groundsel	<i>Senecio spartioides</i>	G5	S1
Brown Bog Sedge	<i>Carex buxbaumii</i>	G5	S2
Buckley's Penstemon	<i>Penstemon buckleyi</i>	G4G5	S1
Buff Fleabane	<i>Erigeron ochroleucus</i>	G5	S2
Buffalo Clover	<i>Trifolium reflexum</i>	G3G4	S1
Bulblet Bladder Fern	<i>Cystopteris bulbifera</i>	G5	S1
Bush's Sedge	<i>Carex bushii</i>	G4	S1S2
Bushy Seedbox	<i>Ludwigia alternifolia</i>	G5	S1?
Butterweed	<i>Packera glabella</i>	G5	S1
Buttonbush	<i>Cephalanthus occidentalis</i>	G5	S1S3
Button-snakeroot	<i>Eryngium yuccifolium</i> var. <i>yuccifolium</i>	G5T5	S1
California Amaranth	<i>Amaranthus californicus</i>	G4	S2
Camphor-weed	<i>Heterotheca latifolia</i>	GNR	S1S2
Canada Hawkweed	<i>Hieracium kalmii</i> var. <i>canadense</i>	G5T5	S1
Canada Lousewort	<i>Pedicularis canadensis</i> var. <i>canadensis</i>	G5T5	S1
Canada Nailwort	<i>Paronychia canadensis</i>	G5	S1
Capitate Spikerush	<i>Eleocharis geniculata</i>	G5	S1
Cardinal Flower	<i>Lobelia cardinalis</i>	G5	S1
Carolina False Dandelion	<i>Pyrrophappus carolinianus</i>	G5	S1

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Carruth's Sagewort	<i>Artemisia carruthii</i>	G4?	S1
Chaffweed	<i>Lysimachia minima</i>	G5	S1
Chapman's Bluegrass	<i>Poa chapmaniana</i>	G5	S1
Chickasaw Plum	<i>Prunus angustifolia</i>	G5	S1
Clammy Hedge-hyssop	<i>Gratiola neglecta</i>	G5	S1
Clasping-leaf Milkweed	<i>Asclepias amplexicaulis</i>	G5	S1
Coreopsis Beggar-ticks	<i>Bidens polylepis</i>	GNR	S2
Creeping Juniper	<i>Juniperus horizontalis</i>	G5	S1
Creeping Lovegrass	<i>Eragrostis reptans</i>	G5	S1
Creeping Polemonium	<i>Polemonium reptans</i>	G5	S1
Crested Wood Fern	<i>Dryopteris cristata</i>	G5	S1
Culver's Root	<i>Veronicastrum virginicum</i>	G4	S1
Curly Three-awn	<i>Aristida desmantha</i>	G5	S1
Cursed Crowfoot	<i>Ranunculus sceleratus</i> var. <i>multifidus</i>	G5T5	S1S3
Cut-leaf Cyclanthera	<i>Cyclanthera dissecta</i>	G5	S1
Cut-leaf Toothwort	<i>Cardamine concatenata</i>	G5	S1
Cut-leaf Water-milfoil	<i>Myriophyllum pinnatum</i>	G5	S1
Desert Centaury	<i>Zeltnera exaltata</i>	G5	S1
Douglas' Knotweed	<i>Polygonum douglasii</i>	G5	S2
Downy Ground-cherry	<i>Physalis missouriensis</i>	G5?	S1
Drummond's Wild Onion	<i>Allium drummondii</i>	G5	S1
Dusty-maiden	<i>Chaenactis douglasii</i> var. <i>douglasii</i>	G5T5	S1
Dwarf Ground-cherry	<i>Physalis pumila</i>	G5	S1
Dwarf Indigo-bush	<i>Amorpha nana</i>	G5	S1
Dwarf Larkspur	<i>Delphinium tricornis</i>	G5	S1S3
Dwarf Locoweed	<i>Oxytropis multiceps</i>	G5	S2
Dwarf Skullcap	<i>Scutellaria parvula</i>	G4	S1
Dwarf Spikerush	<i>Eleocharis coloradoensis</i>	GNR	S1
Dwarf St. John's-wort	<i>Hypericum mutilum</i> var. <i>mutilum</i>	G5TNRS1	
Dwarf Swamp Raspberry	<i>Rubus pubescens</i>	G5	S1
Dwarf-dandelion	<i>Krigia cespitosa</i>	G5	S1
Ear-leaf Toothcup	<i>Ammannia auriculata</i>	G5	S1
Early Blue-top Fleabane	<i>Erigeron vetensis</i>	G4	S1
Early Buttercup	<i>Ranunculus fascicularis</i>	G5	S1
Eastern Star Sedge	<i>Carex radiata</i>	G4	S1
Eastern Toothed Spurge	<i>Euphorbia dentata</i>	G5	S1
Ebony Spleenwort	<i>Asplenium platyneuron</i>	G5	S1
Engelmann's Flatsedge	<i>Cyperus engelmannii</i>	GNR	S2
Erect Knotweed	<i>Polygonum erectum</i>	G5	S1S3
False Dragon's-head	<i>Physostegia parviflora</i>	G4G5	S1
False Lily-of-the-valley	<i>Maianthemum canadense</i> var. <i>interius</i>	G5	S1
False-garlic	<i>Nothoscordum bivalve</i>	G4	S1
Fendler's Aster	<i>Symphyotrichum fendleri</i>	G4?	S1
Few-flower Spikerush	<i>Eleocharis quinqueflora</i>	G5	S1
Field Milk-vetch	<i>Astragalus agrestis</i>	G5	S1
Field Thistle	<i>Cirsium discolor</i>	G5	S1S2
Finger Coreopsis	<i>Coreopsis palmata</i>	G5	S1S3
Fireweed	<i>Chamerion angustifolium</i> var. <i>canescens</i>	G5T5	S1?
Flat-top Aster	<i>Doellingeria umbellata</i> var. <i>pubens</i>	G5T5	S2

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Floating Primrose-willow	<i>Ludwigia peploides</i> var. <i>glabrescens</i>	G5T5	S1
Forest Muhly	<i>Muhlenbergia sylvatica</i>	G5	S1S3
Foxglove Penstemon	<i>Penstemon digitalis</i>	G5	S1
Frank's Sedge	<i>Carex frankii</i>	G5	S1S2
Fraser's Wild Onion	<i>Allium canadense</i> var. <i>fraseri</i>	G5T4T5S2	
Fremont's Evening-primrose	<i>Oenothera macrocarpa</i> ssp. <i>fremontii</i>	G5T3	S1
Fremont's Leather-flower	<i>Clematis fremontii</i>	G5	S1
Fries' Pondweed	<i>Potamogeton friesii</i>	G4	S2
Frost Grape	<i>Vitis vulpina</i>	G5	S1
Gardner's Saltbush	<i>Atriplex gardneri</i> var. <i>gardneri</i>	G5TNRS1	
Georgia Bulrush	<i>Scirpus georgianus</i>	G5	S1S3
Geyer's Larkspur	<i>Delphinium geyeri</i>	G5	S1
Giant St. John's-wort	<i>Hypericum pyramidatum</i>	G4	S1S3
Gilia Beardtongue	<i>Penstemon ambiguus</i> var. <i>ambiguus</i>	G4G5T4T5S1	
Glade Blue Curls	<i>Trichostema brachiatum</i>	G5	S1
Golden Fumewort	<i>Corydalis aurea</i>	G5	S1
Golden-fruit Sedge	<i>Carex aureolensis</i>	GNR	S1
Golden-glow	<i>Rudbeckia laciniata</i> var. <i>ampla</i>	G5T3T5S1	
Goldenweed	<i>Grindelia ciliata</i>	G4G5	S1
Graceful Buttercup	<i>Ranunculus inamoenus</i> var. <i>inamoenus</i>	G5T5	S1
Graham's Rock Cress	<i>Boechera grahamii</i>	GNR	S1S3
Grass-leaf Arrowhead	<i>Sagittaria graminea</i> var. <i>graminea</i>	G5T5S2	
Graybark Grape	<i>Vitis cinerea</i> var. <i>cinerea</i>	G4G5TNRS1	
Great Basin Wild-rye	<i>Leymus cinereus</i>	G5	S1
Great Plains Flatsedge	<i>Cyperus lupulinus</i> ssp. <i>macilentus</i>	G5T5?	S1
Great Plains Twin-pod	<i>Physaria brassicoides</i>	G5	S1
Greater Straw Sedge	<i>Carex normalis</i>	G5	S1
Green Dragon	<i>Arisaema dracontium</i>	G5	S2
Green-flower Hedgehog Cactus	<i>Echinocereus viridiflorus</i>	G5	S2
Green-flower Wintergreen	<i>Pyrola chlorantha</i>	G5	S1
Green-fruit Bur-reed	<i>Sparganium emersum</i>	G5	S2
Gronovius' Dodder	<i>Cuscuta gronovii</i>	G5	S1S3
Gunnison's Mariposa-lily	<i>Calochortus gunnisonii</i> var. <i>gunnisonii</i>	G5TNRS1	
Hairy Bugseed	<i>Corispermum villosum</i>	G4?	S1
Hairy Gayfeather	<i>Liatris hirsuta</i>	G4?	S1S3
Hairy Goldenaster	<i>Heterotheca villosa</i> var. <i>minor</i>	G5T4T5S1	
Hairy Mountain-mint	<i>Pycnanthemum verticillatum</i> var. <i>pilosum</i>	G5T5	S1
Hairy Pinweed	<i>Lechea mucronata</i>	G5	S1?
Hairy Wood Sedge	<i>Carex hirtifolia</i>	G5	S1
Hairy-stem Gooseberry	<i>Ribes hirtellum</i>	G5	S1
Hispid Hedge-nettle	<i>Stachys hispida</i>	GNR	S1
Hoary-aster	<i>Dieteria canescens</i> var. <i>glabra</i>	G5T4T5S1	
Hoary-pea	<i>Tephrosia virginiana</i>	G5	S1
Hooded Ladies'-tresses	<i>Spiranthes romanzoffiana</i>	G5	S1
Hooked Buttercup	<i>Ranunculus recurvatus</i> var. <i>recurvatus</i>	G5TNRS2	
Hooker's Townsendia	<i>Townsendia hookeri</i>	G5	S1
Hook-spur Violet	<i>Viola adunca</i> var. <i>adunca</i>	G5T5	S1?
Hop Sedge	<i>Carex lupulina</i>	G5	S1
Hudson Bay Anemone	<i>Anemone multifida</i> var. <i>multifida</i>	G5TNRS1	

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Indian Blanket-flower	<i>Gaillardia pulchella</i> var. <i>pulchella</i>	G4G5T4T5S1S3	
Indian-pipe	<i>Monotropa uniflora</i>	G5	S1
Indian-tobacco	<i>Lobelia inflata</i>	G5	S1
Inflated Duckweed	<i>Lemna gibba</i>	G4G5	S2
Inflated Sedge	<i>Carex vesicaria</i> var. <i>monile</i>	G5T4	S1
Inland Serviceberry	<i>Amelanchier interior</i>	G5	S1
Intermountain Aster	<i>Symphyotrichum ascendens</i>	G5	S1
Iowa Crab Apple	<i>Malus ioensis</i> var. <i>ioensis</i>	G4G5T4T5S1S3	
James' Nailwort	<i>Paronychia jamesii</i> var. <i>jamesii</i>	G4T4	S1S3
James' Rush-pea	<i>Pomaria jamesii</i>	G5	S1
Joint-leaf Rush	<i>Juncus articulatus</i>	G5	S1
Kiss-me-quick	<i>Portulaca pilosa</i>	G5	S1
Lace Grass	<i>Eragrostis capillaris</i>	G5	S1
Lance-leaf Cottonwood	<i>Populus ×acuminata</i>	GNA	S1?
Large-leaf Pondweed	<i>Potamogeton amplifolius</i>	G5	S1
Lavender Giant-hyssop	<i>Agastache foeniculum</i>	G4G5	S1
Least Duckweed	<i>Lemna minuta</i>	G4	S1
Least Muhly	<i>Muhlenbergia minutissima</i>	G5	S1
Leopard-lily	<i>Fritillaria atropurpurea</i>	G5	S2
Lesser Bladderwort	<i>Utricularia minor</i>	G5	S1
Limber Pine	<i>Pinus flexilis</i>	G4	S1
Limestone Adder's-tongue	<i>Ophioglossum engelmannii</i>	G5	S1
Limestone Wild-petunia	<i>Ruellia strepens</i>	G4G5	S2
Loesel's Twayblade	<i>Liparis loeselii</i>	G5	S1
Long-barb Arrowhead	<i>Sagittaria longiloba</i>	G5	S1
Long-beak Willow	<i>Salix bebbiana</i>	G5	S1
Long-bract Green Orchid	<i>Dactylorhiza viridis</i>	G5	S1
Long-leaf Tick-clover	<i>Desmodium cuspidatum</i> var. <i>longifolium</i>	G5T5?	S1S3
Low Pussytoes	<i>Antennaria dimorpha</i>	G5	S1
Low Sedge	<i>Carex umbellata</i>	G5	S1
Mare's-tail	<i>Hippuris vulgaris</i>	G5	S1
Marsh Arrow-grass	<i>Triglochin palustris</i>	G5	S1
Marsh Vetchling	<i>Lathyrus palustris</i>	G5	S1S3
Marsh-St. John's-wort	<i>Triadenum fraseri</i>	G5	S2
Mat Muhly	<i>Muhlenbergia richardsonis</i>	G5	S1
May-apple	<i>Podophyllum peltatum</i>	G5	S2
Menzies' Catchfly	<i>Silene menziesii</i>	G5	S1
Midwestern Summer Bluets	<i>Houstonia purpurea</i> var. <i>calycosa</i>	G5T5	S1
Missouri Spurge	<i>Euphorbia missurica</i> var. <i>missurica</i>	G5TNR	S1S3
Montana Wild-rye	<i>Elymus albicans</i>	G5?	S1
Moss Phlox	<i>Phlox bryoides</i>	GNR	S2
Mountain White-camas	<i>Anticlea elegans</i> var. <i>elegans</i>	G5T5	S1
Mountain Birch	<i>Betula occidentalis</i>	G4G5	S1
Mountain Bladder-pod	<i>Physaria montana</i>	G5	S2
Mountain Brome	<i>Bromus marginatus</i>	G5	S1S3
Mud Sedge	<i>Carex limosa</i>	G5	S1
Mullein-foxtail	<i>Dasistoma macrophylla</i>	G4	S1
Muttongrass	<i>Poa fendleriana</i> ssp. <i>fendleriana</i>	G5T5	S1
Nannyberry	<i>Viburnum lentago</i>	G5	S1

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Narrow-leaf Cottonwood	<i>Populus angustifolia</i>	G5	S1
Narrow-leaf False Foxglove	<i>Agalinis tenuifolia</i> var. <i>macrophylla</i>	G5T4T5S1S3	
Narrow-leaf Hawkweed	<i>Hieracium umbellatum</i>	G5	S1?
Narrow-leaf Mountain-mint	<i>Pycnanthemum tenuifolium</i>	G5	S1
Narrow-leaf Paleseed	<i>Leucospora multifida</i>	G5	S1
Narrow-leaf Pinweed	<i>Lechea tenuifolia</i>	G5	S1
Narrow-leaf Vervain	<i>Verbena simplex</i>	G5	S1
Nevada Bulrush	<i>Amphiscirpus nevadensis</i>	G4	S2
New Mexico Checker-mallow	<i>Sidalcea neomexicana</i> var. <i>neomexicana</i>	G4?TNRS1	
Nodding Brome	<i>Bromus porteri</i>	G5	S2?
Nodding Mouse-ear Chickweed	<i>Cerastium nutans</i> var. <i>nutans</i>	G5T5? S1	
Nodding Wild Onion	<i>Allium cernuum</i>	G5	S2
Nodding Wild-buckwheat	<i>Eriogonum cernuum</i>	G5	S1
Northern Adder's-tongue	<i>Ophioglossum pusillum</i>	G5	S2
Northern Dewberry	<i>Rubus flagellaris</i>	G5	S1
Northern Manna Grass	<i>Glyceria borealis</i>	G5	S2
Northern Marsh Buttercup	<i>Ranunculus caricetorum</i>	G5	S1
Northern Shooting-star	<i>Primula pauciflora</i> var. <i>pauciflora</i>	G5TNRS1	
Northern Water-starwort	<i>Callitriche hermaphrodita</i>	G5	S2
Northwest Territory Sedge	<i>Carex utriculata</i>	G5	S1
Northwestern Lady Fern	<i>Athyrium filix-femina</i> var. <i>cyclosorum</i>	G5T5 S1	
Notch-bract Waterleaf	<i>Hydrophyllum appendiculatum</i>	G5	S1
Ohio Buckeye	<i>Aesculus glabra</i> var. <i>arguta</i>	G5T4?QS1S2	
Old-field Cinquefoil	<i>Potentilla simplex</i>	G5	S1
One-flower Broomrape	<i>Orobanche uniflora</i>	G5TNRS1	
One-sided Wintergreen	<i>Orthilia secunda</i>	G5	S1
Ostrich Fern	<i>Matteuccia struthiopteris</i> var. <i>pennsylvanica</i>	G5TNRS1	
Pale False-dandelion	<i>Agoseris glauca</i> var. <i>glauca</i>	G5T5 S1	
Pale Fumewort	<i>Corydalis flavula</i>	G5	S1
Pale Gentian	<i>Gentiana alba</i>	G4	S1
Pale Goosefoot	<i>Chenopodium pallescens</i>	G5	S1
Pale Indian-plantain	<i>Arnoglossum atriplicifolium</i>	G4G5 S2	
Pale Purple Coneflower	<i>Echinacea pallida</i>	G4	S1
Panicled Bulrush	<i>Scirpus microcarpus</i>	G5	S1
Pearly Everlasting	<i>Anaphalis margaritacea</i>	G5	S1
Pennsylvania Bitter Cress	<i>Cardamine pennsylvanica</i>	G5	S1
Perennial Bursage	<i>Ambrosia tomentosa</i>	G4	S1
Perennial Gumweed	<i>Grindelia perennis</i>	G5	S1
Persimmon	<i>Diospyros virginiana</i>	G5	S1
Pine-drops	<i>Pterospora andromedea</i>	G5	S2
Pinesap	<i>Monotropa hypopitys</i>	G5	S1
Pinnate Tansy Mustard	<i>Descurainia pinnata</i> var. <i>osmiarum</i>	G5T5? S1	
Pitcher's Leather-flower	<i>Clematis pitcheri</i> var. <i>pitcheri</i>	G4G5TNRS1	
Plains Blackberry	<i>Rubus laudatus</i>	G5	S1
Plains Cutleaf Violet	<i>Viola viarum</i>	G5	S1
Plains Frostweed	<i>Crocanthemum bicknellii</i>	G5	S1S2
Platte River Cinquefoil	<i>Potentilla plattensis</i>	G4	S1
Playa Lovegrass	<i>Eragrostis pilosa</i> var. <i>perplexa</i>	G4TNRS1	
Poison Suckle	<i>Suckleya suckleyana</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Poverty Oatgrass	<i>Danthonia spicata</i>	G5	S1
Poverty Sumpweed	<i>Iva axillaris</i> var. <i>axillaris</i>	G5TNRS	S1S3
Powdery Cloak Fern	<i>Argyrochosma dealbata</i>	G4G5	S1
Powell's Saltbush	<i>Atriplex powellii</i> var. <i>powellii</i>	G4TNRS	S1
Prairie Bluebells	<i>Mertensia lanceolata</i> var. <i>lanceolata</i>	G5T5	S2
Prairie Broomweed	<i>Amphiachyris dracunculoides</i>	G4G5	S1S2
Prairie Buttercup	<i>Ranunculus rhomboideus</i>	G5	S1
Prairie Fawn-lily	<i>Erythronium mesochoreum</i>	G4G5	S2
Prairie Ninebark	<i>Physocarpus intermedius</i>	G3G5	S2
Prairie Pinweed	<i>Lechea stricta</i>	G4?	S1
Prairie White Aster	<i>Symphyotrichum falcatum</i> var. <i>falcatum</i>	G5T4T5S	S1
Prickly Naiad	<i>Najas marina</i>	G5	S1
Prince's-plume	<i>Stanleya pinnata</i> var. <i>pinnata</i>	G5T4T5S	S1
Pull-up Muhly	<i>Muhlenbergia filiformis</i>	G5	S1
Purple Cudweed	<i>Gamochaeta purpurea</i>	G5	S1
Purple Giant-hyssop	<i>Agastache scrophulariifolia</i>	G4	S1
Purple Milkweed	<i>Asclepias purpurascens</i>	G5?	S1
Purple Rattlesnake-root	<i>Prenanthes racemosa</i> var. <i>multiflora</i>	G5T4?	S1
Purple Spikerush	<i>Eleocharis atropurpurea</i>	G4G5	S1
Purple-stem Cliff-brake	<i>Pellaea atropurpurea</i>	G5	S2
Quaking Aspen	<i>Populus tremuloides</i>	G5	S1S3
Ramp	<i>Allium tricoccum</i> var. <i>burdickii</i>	G5T4T5	S2
Raven-foot Sedge	<i>Carex crus-corvi</i>	G5	S1
Red Lovegrass	<i>Eragrostis secundiflora</i> var. <i>capitata</i>	G5TNRS	S1
Red Raspberry	<i>Rubus strigosus</i>	G5	S1
Red-seed Plantain	<i>Plantago rhodosperma</i>	GNR	S1
Rillscale	<i>Stutzia dioica</i>	G4?	S1
River Grass	<i>Scolochloa festucacea</i>	G5	S1
Rockpink Fame-flower	<i>Phemeranthus calycinus</i>	G5	S1S2
Rocky Mountain Fescue	<i>Festuca saximontana</i> var. <i>saximontana</i>	G5T5	S1
Rocky Mountain Gayfeather	<i>Liatris ligulistylis</i>	G5?	S1
Rocky Mountain Iris	<i>Iris missouriensis</i>	G5	S1
Rocky Mountain Knotweed	<i>Polygonum sawatchense</i> ssp. <i>sawatchense</i>	G4G5TNRS	S1S3
Rocky Mountain Maple	<i>Acer glabrum</i>	G5	S1?
Rocky Mountain Navarretia	<i>Navarretia saximontana</i>	GNR	S1
Rose Heath Daisy	<i>Chaetopappa ericoides</i>	G5	S2
Rose Highbush Blackberry	<i>Rubus rosa</i>	G5	S1
Rosinweed	<i>Silphium integrifolium</i> var. <i>integrifolium</i>	G5T5	S1
Ross' Sedge	<i>Carex rossii</i>	G5	S2
Rough Buttonweed	<i>Diodia teres</i> var. <i>teres</i>	G5T5	S1
Rough-fruit Fairybells	<i>Prosartes trachycarpa</i>	G5	S1
Rough-pod Copperleaf	<i>Acalypha ostryifolia</i>	G5	S1S3
Round-head Prairie-clover	<i>Dalea multiflora</i>	G5	S1
Round-leaf Bladder-pod	<i>Physaria ovalifolia</i> var. <i>ovalifolia</i>	G5?T5?	S1
Round-pod St. John's-wort	<i>Hypericum sphaerocarpum</i>	G5	S1
Round-stem False Foxglove	<i>Agalinis gattereri</i>	G4	S1S3
Rydberg's Wild-rye	<i>Elymus vulpinus</i>	G1G3Q	S1
Sagebrush Buttercup	<i>Ranunculus glaberrimus</i> var. <i>ellipticus</i>	G5T5	S1
Saltmarsh Aster	<i>Symphyotrichum subulatum</i>	G5	S1S3

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Saltmarsh Sand-spurry	<i>Spergularia salina</i>	G5	S1
Sandbar Lovegrass	<i>Eragrostis frankii</i>	G5	S1
Sandberg's Beggar-ticks	<i>Bidens connata</i> var. <i>pinnata</i>	G5TNRS1	
Saskatchewan Cinquefoil	<i>Potentilla effusa</i> var. <i>effusa</i>	G5?TNRS2?	
Scribner's Groundsel	<i>Senecio scribneri</i>	G1G3	S1
Sea Milkwort	<i>Lysimachia maritima</i>	G5	S1
Seaside Heliotrope	<i>Heliotropium curassavicum</i> var. <i>curassavicum</i>	G5T5	S1
Seaside Heliotrope	<i>Heliotropium curassavicum</i> var. <i>obovatum</i>	G5T5	S1
Secund Bladder-Pod	<i>Physaria arenosa</i> var. <i>arenosa</i>	G5T5	S1
Seep Monkey-Flower	<i>Mimulus guttatus</i>	G5	S1
Seneca Snakeroot	<i>Polygala senega</i>	G4G5	S1
Sessile-leaf Tick-clover	<i>Desmodium sessilifolium</i>	G5	S1
Sharpwing Monkey-flower	<i>Mimulus alatus</i>	G5	S1S2
Shining Sumac	<i>Rhus copallinum</i> var. <i>latifolia</i>	G5T5	S1
Short-pod Draba	<i>Draba brachycarpa</i>	G4G5	S1
Short-ray Fleabane	<i>Erigeron lonchophyllus</i>	G5	S1
Short-ray Prairie-coneflower	<i>Ratibida tagetes</i>	G4G5	S1
Short's Rock Cress	<i>Boechera dentata</i>	G5	S2
Short-seed Waterwort	<i>Elatine brachysperma</i>	G5	S1
Short-stem Wild-buckwheat	<i>Eriogonum brevicaule</i> var. <i>brevicaule</i>	G4T4?	S1
Showy Orchid	<i>Galearis spectabilis</i>	G5	S1
Showy-wand Goldenrod	<i>Solidago speciosa</i> var. <i>pallida</i>	G5T4	S1
Silverweed	<i>Potentilla anserina</i>	G5	S1
Slender Cotton-grass	<i>Eriophorum gracile</i>	G5	S2
Slender Fimbry	<i>Fimbristylis autumnalis</i>	G5	S2
Slender Ladies'-tresses	<i>Spiranthes lacera</i> var. <i>gracilis</i>	G5T4T5S1	
Slender Lip Fern	<i>Cheilanthes feei</i>	G5	S2
Slender Yellow Cress	<i>Rorippa tenerrima</i>	G5	S1
Slender-leaf Spring-panicum	<i>Dichanthelium linearifolium</i>	GNR	S1
Slim-flower Muhly	<i>Muhlenbergia tenuiflora</i>	G5	S1
Slim-leaf Scurf-pea	<i>Pedimelum linearifolium</i>	G4?	S1
Small Bluets	<i>Houstonia pusilla</i>	G5	S1
Small Sundrops	<i>Oenothera perennis</i>	G5	S2
Small Venus'-looking-glass	<i>Triodanis biflora</i>	G5	S1
Small-flower Bitter Cress	<i>Cardamine parviflora</i>	G5	S1
Small-flower Prairie-star	<i>Lithophragma parviflora</i>	G5	S1
Small-flower Sandpuffs	<i>Tripterocalyx micranthus</i>	G5	S1
Small-flower Wallflower	<i>Erysimum inconspicuum</i>	G5	S2
Smith's Hybrid Aspen	<i>Populus</i> × <i>smithii</i>	GNA	S1
Smooth Cliff-brake	<i>Pellaea glabella</i> var. <i>glabella</i>	G5T5	S1
Smooth False Foxglove	<i>Agalinis purpurea</i>	G5	S1S3
Snowberry	<i>Symphoricarpos albus</i> var. <i>albus</i>	G5T5	S1?
Soft Rush	<i>Juncus effusus</i> var. <i>solutus</i>	G5T5	S1
Sooth Four-o'clock	<i>Mirabilis labra</i>	G5	S2
Southern Chervil	<i>Chaerophyllum tainturieri</i> var. <i>tainturieri</i>	G5T4T5S1	
Southern Wild Senna	<i>Senna marilandica</i>	G5	S1S2
Spike Hawthorn	<i>Crataegus macracantha</i> var. <i>occidentalis</i>	GNRTNRS1S3	
Spikebent	<i>Agrostis exarata</i> var. <i>minor</i>	G5TNRS1	
Spiked Muhly	<i>Muhlenbergia glomerata</i>	G5	S2

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Spike-fescue	<i>Leucopoa kingii</i>	G5	S1?
Spikenard	<i>Aralia racemosa</i>	G4G5	S1
Spinulose Wood Fern	<i>Dryopteris carthusiana</i>	G5	S2
Spotted Evening-primrose	<i>Oenothera canescens</i>	G4G5	S2
Spotted St. John's-wort	<i>Hypericum punctatum</i>	G5	S1
Spotted Water-hemlock	<i>Cicuta maculata</i> var. <i>bolanderi</i>	G5T3T4S1	
Spreading Fleabane	<i>Erigeron divergens</i>	G5	S2
Spreading Pygmyleaf	<i>Loeflingia squarrosa</i> var. <i>texana</i>	G5TNRS1	
Spring Avens	<i>Geum vernum</i>	G5	S1
Spring Bitter Cress	<i>Cardamine bulbosa</i>	G5	S1S3
Spring Coral-root	<i>Corallorhiza wisteriana</i>	G5	S1
Spring Forget-me-not	<i>Myosotis verna</i>	G5	S1
Spring Ladies'-tresses	<i>Spiranthes vernalis</i>	G5	S1S3
Starved Spring-panicum	<i>Dichanthelium depauperatum</i>	G5	S1
Stickleaf	<i>Mentzelia oligosperma</i>	G4	S1
Sticky Crane's-bill	<i>Geranium viscosissimum</i>	G5	S1
Sticky Gilia	<i>Aliciella pinnatifida</i>	G4G5	S1
Straight-leaf Pondweed	<i>Potamogeton strictifolius</i>	G5	S1
Streambank Ragwort	<i>Packera pseud aurea</i> var. <i>semicordata</i>	G5T3T5QS1	
Striped Coral-Root	<i>Corallorhiza striata</i> var. <i>vreelandii</i>	G5TNRS1	
Sugarbowls	<i>Clematis hirsutissima</i> var. <i>scottii</i>	G4T4? S1	
Summer Coral-root	<i>Corallorhiza maculata</i> var. <i>occidentalis</i>	G5T3T5S1	
Summer Grape	<i>Vitis aestivalis</i> var. <i>aestivalis</i>	G5T5	S1
Summer Orophaca	<i>Astragalus hyalinus</i>	G4	S2
Tall Cotton-grass	<i>Eriophorum angustifolium</i> var. <i>angustifolium</i>	G5TNRS2	
Taper-tip Rush	<i>Juncus acuminatus</i>	G5	S1
Texas Bergia	<i>Bergia texana</i>	G5	S1
Texas Dropseed	<i>Sporobolus texanus</i>	G5	S1
Texas Sandwort	<i>Minuartia michauxii</i> var. <i>texana</i>	G5T3T5S2	
Texas Sedge	<i>Carex texensis</i>	G5	S1
Texas Toadflax	<i>Nuttallanthus texanus</i>	G4G5	S2
Thick-spike Gayfeather	<i>Liatris pycnostachya</i> var. <i>pycnostachya</i>	G5T5	S1S3
Thread-leaf Pondweed	<i>Stuckenia filiformis</i> var. <i>occidentalis</i>	G5T5	S1
Three-flower Melic Grass	<i>Melica nitens</i>	G5	S1
Three-nerve Fleabane	<i>Erigeron subtrinervis</i>	G5	S2
Tine-leaf Milk-vetch	<i>Astragalus pectinatus</i>	G5	S1
Tube Penstemon	<i>Penstemon tubiflorus</i> var. <i>tubiflorus</i>	G5T4T5S1	
Tuberous False Dandelion	<i>Pyrrhopappus grandiflorus</i>	G5	S1
Tufted Fleabane	<i>Erigeron caespitosus</i>	G5	S2
Twisted Yellow-eyed-grass	<i>Xyris torta</i>	G5	S2
Two-leaf Waterweed	<i>Elodea bifoliata</i>	G4G5	S1
Vahl's Fimbry	<i>Fimbristylis vahlii</i>	G5	S1
Veiny Pepper-grass	<i>Lepidium oblongum</i>	G5	S1
Vernal Water-starwort	<i>Callitriche palustris</i>	G5	S2
Violet Lespedeza	<i>Lespedeza violacea</i>	G5	S1
Virginia Spring-beauty	<i>Claytonia virginica</i>	G5	S1
Virginia Wild-rye	<i>Elymus virginicus</i> var. <i>intermedius</i>	G5TNRS1S3	
Water Dock	<i>Rumex verticillatus</i>	G5	S1
Water Horsetail	<i>Equisetum fluviatile</i>	G5	S1

<u>Common Name</u>	<u>Scientific Name</u>	<u>Grank</u>	<u>Srank</u>
Water Sedge	<i>Carex aquatilis</i> var. <i>substricta</i>	G5TNRS	S2
Watershield	<i>Brasenia schreberi</i>	G5	S2
Water-thread Pondweed	<i>Potamogeton diversifolius</i>	G5	S2
Wax-flower Shinleaf	<i>Pyrola elliptica</i>	G5	S1
Wedge-leaf Draba	<i>Draba cuneifolia</i> var. <i>cuneifolia</i>	G5T5	S1
Welsh's Bugseed	<i>Corispermum welshii</i>	G2G4	S1
Western Marsh Cudweed	<i>Gnaphalium palustre</i>	G5	S1S3
Western Prairie Flax	<i>Linum lewisii</i> var. <i>lewisii</i>	G5T5	S1
Western Rattlesnake-plantain	<i>Goodyera oblongifolia</i>	G5?	S1
Whip Nut-Rush	<i>Scleria triglomerata</i>	G5	S1S2
White Arrow-leaf Aster	<i>Symphyotrichum urophyllum</i>	G4G5	S1
White Baneberry	<i>Actaea pachypoda</i>	G5	S1
White Bear Sedge	<i>Carex albursina</i>	G5	S1
White Boltonia	<i>Boltonia asteroides</i> var. <i>latisquama</i>	G5TNRS	S1S3
White Oak	<i>Quercus alba</i>	G5	S1
White Water-lily	<i>Nymphaea odorata</i> ssp. <i>tuberosa</i>	G5T5	S1S3
White Woodland Aster	<i>Symphyotrichum lateriflorum</i>	G5	S1
White-scale Sedge	<i>Carex xerantica</i>	G5	S2
White-stem Blazing-star	<i>Mentzelia albicaulis</i>	G5	S1
White-stem Pondweed	<i>Potamogeton praelongus</i>	G5	S1
Whorled Water-milfoil	<i>Myriophyllum verticillatum</i>	G5	S1
Wild Geranium	<i>Geranium maculatum</i>	G5	S1
Wild Yam	<i>Dioscorea villosa</i>	G5	S1
Wild-goose Plum	<i>Prunus hortulana</i>	G4?	S1
Wire-lettuce	<i>Stephanomeria runcinata</i>	G5	S2
Wood Mint	<i>Blephilia hirsuta</i>	G5?	S1
Wool-grass	<i>Scirpus cyperinus</i>	G5	S1
Woolly-fruit Sedge	<i>Carex lasiocarpa</i> var. <i>americana</i>	G5T5	S1
Yellow Lady's-slipper	<i>Cypripedium parviflorum</i>	G5	S1
Yellow Marsh-marigold	<i>Caltha palustris</i>	G5	S2
Yellow Pond-lily	<i>Nuphar variegata</i>	G5	S2
Yellow Stonecrop	<i>Sedum lanceolatum</i> var. <i>lanceolatum</i>	G5T3T5S2	
Yellow Valley Violet	<i>Viola vallicola</i>	G5?	S2
Yellow Vetchling	<i>Lathyrus ochroleucus</i>	G4G5	S2
Yellow-fruit Sedge	<i>Carex brachyglossa</i>	GNR	S1S3
Zigzag Goldenrod	<i>Solidago flexicaulis</i>	G5	S1

MISSOURI NATIONAL RECREATIONAL RIVER SPECIES LISTS

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Fishes of MNRR

Park	Family	Scientific Name	Common Name	Park Status	Abundance	Residency	Nativity
MNRR	Acipenseridae	Acipenser fulvescens	lake sturgeon	Present in Park	Occasional	Unknown	Native
MNRR	Acipenseridae	Scaphirhynchus albus	pallid sturgeon	Present in Park	Occasional	Unknown	Native
MNRR	Acipenseridae	Scaphirhynchus platyrhynchus	shovelnose sturgeon	Present in Park	Uncommon	Breeder	Native
MNRR	Anguillidae	Anguilla rostrata	American eel	Present in Park	Occasional	Resident	Native
MNRR	Catostomidae	Carpiodes carpio	river carpsucker	Present in Park	Common	Breeder	Native
MNRR	Catostomidae	Carpiodes cyprinus	quillback	Present in Park	Common	Breeder	Native
MNRR	Catostomidae	Carpiodes velifer	highfin carpsucker	Present in Park	Rare	Breeder	Native
MNRR	Catostomidae	Catostomus commersonii	white sucker	Present in Park	Rare	Breeder	Native
MNRR	Catostomidae	Cycleptus elongatus	blue sucker	Present in Park	Uncommon	Breeder	Native
MNRR	Catostomidae	Ictiobus bubalus	smallmouth buffalo	Present in Park	Uncommon	Breeder	Native
MNRR	Catostomidae	Ictiobus cyprinellus	bigmouth buffalo	Present in Park	Uncommon	Breeder	Native
MNRR	Catostomidae	Ictiobus niger	black buffalo	Unconfirmed	NA	NA	Native
MNRR	Catostomidae	Moxostoma erythrurum	golden redhorse	Unconfirmed	NA	NA	Native
MNRR	Catostomidae	Moxostoma macrolepidotum	shorthead redhorse	Present in Park	Common	Breeder	Native
MNRR	Centrarchidae	Ambloplites rupestris	rock bass	Present in Park	Uncommon	Breeder	Native
MNRR	Centrarchidae	Archoplites interruptus	Sacramento perch	Probably Present	NA	NA	Non-Native
MNRR	Centrarchidae	Lepomis cyanellus	green sunfish	Present in Park	Rare	Breeder	Native
MNRR	Centrarchidae	Lepomis gibbosus	pumpkinseed	Probably Present	NA	NA	Non-Native
MNRR	Centrarchidae	Lepomis humilis	orangespotted sunfish	Present in Park	Rare	Breeder	Native
MNRR	Centrarchidae	Lepomis macrochirus	bluegill	Present in Park	Rare	Breeder	Non-Native
MNRR	Centrarchidae	Lepomis microlophus	redear sunfish	Probably Present	NA	NA	Non-Native
MNRR	Centrarchidae	Micropterus dolomieu	smallmouth bass	Present in Park	Common	Breeder	Non-Native

MNRR	Centrarchidae	<i>Micropterus punctulatus</i>	spotted bass	Unconfirmed	NA	NA	Non-Native
MNRR	Centrarchidae	<i>Micropterus salmoides</i>	largemouth bass	Present in Park	Uncommon	Breeder	Non-Native
MNRR	Centrarchidae	<i>Pomoxis annularis</i>	white crappie	Present in Park	Rare	Breeder	Non-Native
MNRR	Centrarchidae	<i>Pomoxis nigromaculatus</i>	black crappie	Present in Park	Rare	Breeder	Non-Native
MNRR	Clupeidae	<i>Alosa chrysochloris</i>	skipjack herring	Present in Park	Occasional	Unknown	Native
MNRR	Clupeidae	<i>Alosa pseudoharengus</i>	alewife	Probably Present	NA	NA	Non-Native
MNRR	Clupeidae	<i>Dorosoma cepedianum</i>	gizzard shad	Present in Park	Abundant	Breeder	Native
MNRR	Cyprinidae	<i>Campostoma anomalum</i>	central stoneroller	Probably Present	NA	NA	Native
MNRR	Cyprinidae	<i>Carassius auratus</i>	goldfish	Unconfirmed	NA	NA	Non-Native
MNRR	Cyprinidae	<i>Ctenopharyngodon idella</i>	grass carp	Present in Park	Rare	Resident	Non-Native
MNRR	Cyprinidae	<i>Cyprinella lutrensis</i>	red shiner	Present in Park	Common	Breeder	Native
MNRR	Cyprinidae	<i>Cyprinella spiloptera</i>	spotfin shiner	Present in Park	Common	Breeder	Non-Native
MNRR	Cyprinidae	<i>Cyprinus carpio</i>	common carp	Present in Park	Common	Breeder	Non-Native
MNRR	Cyprinidae	<i>Hybognathus argyritis</i>	western silvery minnow	Probably Present	NA	NA	Native
MNRR	Cyprinidae	<i>Hybognathus hankinsoni</i>	brassy minnow	Present in Park	Rare	Breeder	Native
MNRR	Cyprinidae	<i>Hybognathus nuchalis</i>	Mississippi silvery minnow	Probably Present	NA	NA	Native
MNRR	Cyprinidae	<i>Hybognathus placitus</i>	plains minnow	Present in Park	Occasional	Breeder	Native
MNRR	Cyprinidae	<i>Hypophthalmichthys molitrix</i>	silver carp	Present in Park	Uncommon	Resident	Non-Native
MNRR	Cyprinidae	<i>Hypophthalmichthys nobilis</i>	bighead carp	Present in Park	Uncommon	Resident	Non-Native
MNRR	Cyprinidae	<i>Luxilus cornutus</i>	common shiner	Present in Park	Unknown	Breeder	Native
MNRR	Cyprinidae	<i>Macrhybopsis aestivalis</i>	speckled chub	Historic	NA	NA	Native
MNRR	Cyprinidae	<i>Macrhybopsis gelida</i>	sturgeon chub	Present in Park	Occasional	Breeder	Native
MNRR	Cyprinidae	<i>Macrhybopsis meeki</i>	sicklefin chub	Present in Park	Occasional	Breeder	Native
MNRR	Cyprinidae	<i>Macrhybopsis storeriana</i>	silver chub	Present in Park	Occasional	Breeder	Native

MNRR	Cyprinidae	Notemigonus crysoleucas	golden shiner	Present in Park	Rare	Breeder	Native
MNRR	Cyprinidae	Notropis atherinoides	emerald shiner	Present in Park	Abundant	Breeder	Native
MNRR	Cyprinidae	Notropis blennius	river shiner	Present in Park	Uncommon	Breeder	Native
MNRR	Cyprinidae	Notropis buchanani	ghost shiner	Unconfirmed	NA	NA	Native
MNRR	Cyprinidae	Notropis dorsalis	bigmouth shiner	Present in Park	Rare	Breeder	Native
MNRR	Cyprinidae	Notropis hudsonius	spottail shiner	Present in Park	Uncommon	Unknown	Non-Native
MNRR	Cyprinidae	Notropis shumardi	silverband shiner	Unconfirmed	NA	NA	Native
MNRR	Cyprinidae	Notropis stramineus	sand shiner	Present in Park	Common	Breeder	Native
MNRR	Cyprinidae	Notropis topeka	Topeka shiner	Unconfirmed	NA	NA	Native
MNRR	Cyprinidae	Notropis volucellus	mimic shiner	Present in Park	Rare	Unknown	Native
MNRR	Cyprinidae	Phenacobius mirabilis	suckermouth minnow	Unconfirmed	NA	NA	Native
MNRR	Cyprinidae	Phoxinus eos	northern redbelly dace	Probably Present	NA	NA	Native
MNRR	Cyprinidae	Pimephales notatus	bluntnose minnow	Present in Park	Occasional	Unknown	Native
MNRR	Cyprinidae	Pimephales promelas	fathead minnow	Present in Park	Rare	Breeder	Native
MNRR	Cyprinidae	Platygobio gracilis	flathead chub	Present in Park	Rare	Breeder	Native
MNRR	Cyprinidae	Rhinichthys atratulus	blacknose dace	Present in Park	Occasional	Unknown	Native
MNRR	Cyprinidae	Rhinichthys cataractae	longnose dace	Probably Present	NA	NA	Native
MNRR	Cyprinidae	Semotilus atromaculatus	creek chub	Present in Park	Unknown	Unknown	Native
MNRR	Esocidae	Esox americanus	redfin pickerel	Present in Park	Rare	Breeder	Native
MNRR	Esocidae	Esox lucius	northern pike	Present in Park	Uncommon	Breeder	Native
MNRR	Esocidae	Esox masquinongy	muskellunge	Unconfirmed	NA	NA	Non-Native
MNRR	Fundulidae	Fundulus sciadicus	plains topminnow	Present in Park	Unknown	Unknown	Native
MNRR	Gadidae	Lota lota	burbot, eelpout	Present in Park	Rare	Breeder	Native
MNRR	Gasterosteidae	Culaea inconstans	brook stickleback	Unconfirmed	NA	NA	Native

MNRR	Hiodontidae	Hiodon alosoides	goldeye	Present in Park	Abundant	Breeder	Native
MNRR	Ictaluridae	Ameiurus melas	black bullhead	Present in Park	Uncommon	Breeder	Native
MNRR	Ictaluridae	Ameiurus natalis	yellow bullhead	Present in Park	Uncommon	Breeder	Native
MNRR	Ictaluridae	Ictalurus furcatus	blue catfish	Probably Present	NA	NA	Native
MNRR	Ictaluridae	Ictalurus punctatus	channel catfish	Present in Park	Common	Breeder	Native
MNRR	Ictaluridae	Noturus flavus	stonecat	Present in Park	Rare	Breeder	Native
MNRR	Ictaluridae	Noturus gyrinus	tadpole madtom	Unconfirmed	NA	NA	Native
MNRR	Ictaluridae	Pylodictis olivaris	flathead catfish	Present in Park	Uncommon	Breeder	Native
MNRR	Lepisosteidae	Lepisosteus oculatus	spotted gar	Probably Present	NA	NA	Native
MNRR	Lepisosteidae	Lepisosteus osseus	longnose gar	Present in Park	Common	Breeder	Native
MNRR	Lepisosteidae	Lepisosteus platostomus	shortnose gar	Present in Park	Common	Breeder	Native
MNRR	Moronidae	Morone americana	white perch	Unconfirmed	NA	NA	Non-Native
MNRR	Moronidae	Morone chrysops	white bass	Present in Park	Common	Breeder	Native
MNRR	Osmeridae	Osmerus mordax	rainbow smelt	Present in Park	Rare	Resident	Non-Native
MNRR	Percidae	Etheostoma exile	iowa darter	Present in Park	Occasional	Unknown	Native
MNRR	Percidae	Etheostoma nigrum	johnny darter	Present in Park	Rare	Breeder	Native
MNRR	Percidae	Perca flavescens	yellow perch	Present in Park	Uncommon	Breeder	Native
MNRR	Percidae	Sander canadensis	sauger	Present in Park	Uncommon	Breeder	Native
MNRR	Percidae	Sander vitreus	walleye	Present in Park	Uncommon	Breeder	Native
MNRR	Petromyzontidae	Ichthyomyzon unicuspis	silver lamprey	Unconfirmed	NA	NA	Native
MNRR	Polyodontidae	Polyodon spathula	paddlefish	Present in Park	Uncommon	Breeder	Native
MNRR	Salmonidae	Oncorhynchus mykiss	rainbow trout	Present in Park	Occasional	Migratory	Non-Native
MNRR	Salmonidae	Salmo trutta	brown trout	Present in Park	Occasional	Migratory	Non-Native
MNRR	Sciaenidae	Aplodinotus grunniens	freshwater drum	Present in Park	Common	Breeder	Native

Amphibians of MNRR

Park	Family	Scientific Name	Common Name	Park Status	Abundance	Residency	Nativity
MNRR	Ambystomatidae	Ambystoma tigrinum	Tiger Salamander	Unconfirmed	NA	NA	Native
MNRR	Bufo	Bufo cognatus	Great Plains Toad	Present in Park	Unknown	Unknown	Native
MNRR	Bufo	Bufo woodhousii	Woodhouse's Toad	Present in Park	Unknown	Unknown	Native
MNRR	Hyla	Acris crepitans	Northern Cricket Frog	Present in Park	Unknown	Unknown	Native
MNRR	Hyla	Hyla chrysoscelis	Cope's Gray Treefrog	Present in Park	Unknown	Unknown	Native
MNRR	Hyla	Pseudacris triseriata	Western Chorus Frog	Present in Park	Unknown	Unknown	Native
MNRR	Rana	Rana blairi	Plains Leopard Frog	Present in Park	Unknown	Unknown	Native
MNRR	Rana	Rana catesbeiana	Bullfrog	Present in Park	Unknown	Unknown	Native
MNRR	Rana	Rana pipiens	Northern Leopard Frog	Present in Park	Unknown	Unknown	Native
MNRR	Scaphiopodidae	Spea bombifrons	Plains Spadefoot	Present in Park	Unknown	Unknown	Native

Reptiles of MNRR

Park	Family	Scientific Name	Common Name	Park Status	Abundance	Residency	Nativity
MNRR	Chelydridae	Chelydra serpentina	Snapping Turtle	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Coluber constrictor	Racer	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Diadophis punctatus	Ring-necked Snake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Elaphe vulpina	Western Foxsnake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Heterodon nasicus	Western Hog-nosed Snake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Heterodon platirhinos	Eastern Hog-nosed Snake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Lampropeltis triangulum	Milksnake	Unconfirmed	NA	NA	Native
MNRR	Colubridae	Nerodia sipedon	Northern Water Snake	Unconfirmed	NA	NA	Native
MNRR	Colubridae	Pituophis catenifer	Gopher Snake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Storeria occipitomaculata	Redbelly Snake	Unconfirmed	NA	NA	Native
MNRR	Colubridae	Thamnophis radix	Plains Garter Snake	Present in Park	Unknown	Unknown	Native
MNRR	Colubridae	Thamnophis sirtalis	Common Garter Snake	Present in Park	Unknown	Unknown	Native
MNRR	Emydidae	Chrysemys picta	Painted Turtle	Present in Park	Unknown	Unknown	Native
MNRR	Emydidae	Graptemys pseudogeographica	False Map Turtle	Present in Park	Unknown	Unknown	Native
MNRR	Emydidae	Terrapene ornata	Western Box Turtle	Present in Park	Unknown	Unknown	Native
MNRR	Scincidae	Eumeces fasciatus	Five-lined Skink	Unconfirmed	NA	NA	Native
MNRR	Scincidae	Eumeces septentrionalis	Prairie Skink	Present in Park	Unknown	Unknown	Native
MNRR	Teiidae	Cnemidophorus sexlineatus	Six-lined Racerunner	Present in Park	Unknown	Unknown	Native
MNRR	Trionychidae	Apalone mutica	Smooth Softshell	Present in Park	Unknown	Unknown	Native
MNRR	Trionychidae	Apalone spinifera	Spiny Softshell	Present in Park	Unknown	Unknown	Native
MNRR	Viperidae	Crotalus viridis	Prairie Rattlesnake	Present in Park	Unknown	Unknown	Native

Birds of MNRR

Park	Family	Scientific Name	Common Name	Park Status	Abundance	Residency	Nativity
MNRR	Accipitridae	Accipiter cooperii	Cooper's Hawk	Present in Park	Unknown	Unknown	Native
MNRR	Accipitridae	Accipiter striatus	Sharp-shinned Hawk	Present in Park	Unknown	Unknown	Native
MNRR	Accipitridae	Buteo jamaicensis	Red-tailed Hawk	Present in Park	Unknown	Breeder	Native
MNRR	Accipitridae	Buteo lagopus	Rough-legged Hawk	Present in Park	Unknown	Unknown	Native
MNRR	Accipitridae	Buteo platypterus	Broad-winged Hawk	Present in Park	Unknown	Unknown	Native
MNRR	Accipitridae	Buteo swainsoni	Swainson's Hawk	Present in Park	Unknown	Unknown	Native
MNRR	Accipitridae	Circus cyaneus	Northern Harrier	Unconfirmed	NA	NA	Native
MNRR	Accipitridae	Haliaeetus leucocephalus	Bald Eagle	Present in Park	Unknown	Breeder	Native
MNRR	Accipitridae	Pandion haliaetus	Osprey	Present in Park	Unknown	Unknown	Native
MNRR	Alaudidae	Eremophila alpestris	Horned Lark	Present in Park	Unknown	Breeder	Native
MNRR	Alcedinidae	Ceryle alcyon	Belted Kingfisher	Present in Park	Unknown	Unknown	Native
MNRR	Anatidae	Aix sponsa	Wood Duck	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	Anas acuta	Northern Pintail	Present in Park	Unknown	Unknown	Native
MNRR	Anatidae	Anas americana	American Wigeon	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	Anas clypeata	Northern Shoveler	Present in Park	Unknown	Unknown	Native
MNRR	Anatidae	Anas crecca	Green-winged Teal	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	Anas discors	Blue-winged Teal	Present in Park	Unknown	Unknown	Native
MNRR	Anatidae	Anas platyrhynchos	Mallard	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	Anas rubripes	American Black Duck	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	Anas strepera	Gadwall	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	Anser albifrons	Greater White-fronted Goose	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	Aythya affinis	Lesser Scaup	Present in Park	Unknown	Migratory	Native

MNRR	Anatidae	<i>Aythya americana</i>	Redhead	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	<i>Aythya collaris</i>	Ring-necked Duck	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Aythya marila</i>	Greater Scaup	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Aythya valisineria</i>	Canvasback	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Branta canadensis</i>	Canada Goose	Present in Park	Unknown	Breeder	Native
MNRR	Anatidae	<i>Bucephala albeola</i>	Bufflehead	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Bucephala clangula</i>	Common Goldeneye	Present in Park	Unknown	Unknown	Native
MNRR	Anatidae	<i>Chen caerulescens</i>	Snow Goose	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Chen rossii</i>	Ross's Goose	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Cygnus columbianus</i>	Tundra Swan	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Lophodytes cucullatus</i>	Hooded Merganser	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Melanitta perspicillata</i>	Surf Scoter	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Mergus merganser</i>	Common Merganser	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Mergus serrator</i>	Red-breasted Merganser	Present in Park	Unknown	Migratory	Native
MNRR	Anatidae	<i>Oxyura jamaicensis</i>	Ruddy Duck	Present in Park	Unknown	Unknown	Native
MNRR	Apodidae	<i>Chaetura pelagica</i>	Chimney Swift	Present in Park	Unknown	Unknown	Native
MNRR	Ardeidae	<i>Ardea alba</i>	Great Egret	Present in Park	Unknown	Unknown	Native
MNRR	Ardeidae	<i>Ardea herodias</i>	Great Blue Heron	Present in Park	Unknown	Breeder	Native
MNRR	Ardeidae	<i>Botaurus lentiginosus</i>	American Bittern	Unconfirmed	NA	NA	Native
MNRR	Ardeidae	<i>Bubulcus ibis</i>	Cattle Egret	Unconfirmed	NA	NA	Native
MNRR	Ardeidae	<i>Butorides virescens</i>	Green Heron	Present in Park	Unknown	Unknown	Native
MNRR	Ardeidae	<i>Egretta thula</i>	Snowy Egret	Unconfirmed	NA	NA	Native
MNRR	Ardeidae	<i>Ixobrychus exilis</i>	Least Bittern	Present in Park	Unknown	Breeder	Native
MNRR	Ardeidae	<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	Unconfirmed	NA	NA	Native

MNRR	Bombycillidae	Bombycilla cedrorum	Cedar Waxwing	Present in Park	Unknown	Breeder	Native
MNRR	Caprimulgidae	Caprimulgus vociferus	Whip-poor-will	Present in Park	Unknown	Breeder	Native
MNRR	Caprimulgidae	Chordeiles minor	Common Nighthawk	Present in Park	Unknown	Unknown	Native
MNRR	Caprimulgidae	Phalaenoptilus nuttallii	Common Poorwill	Unconfirmed	NA	NA	Native
MNRR	Certhiidae	Certhia americana	Brown Creeper	Present in Park	Unknown	Unknown	Native
MNRR	Certhiidae	Cistothorus palustris	Marsh Wren	Present in Park	Unknown	Breeder	Native
MNRR	Certhiidae	Cistothorus platensis	Sedge Wren	Present in Park	Unknown	Breeder	Native
MNRR	Certhiidae	Poliophtila caerulea	Blue-gray Gnatcatcher	Present in Park	Unknown	Unknown	Native
MNRR	Certhiidae	Thryothorus ludovicianus	Carolina Wren	Present in Park	Unknown	Migratory	Native
MNRR	Certhiidae	Troglodytes aedon	House Wren	Present in Park	Unknown	Breeder	Native
MNRR	Charadriidae	Charadrius melodus	Piping Plover	Present in Park	Unknown	Breeder	Native
MNRR	Charadriidae	Charadrius semipalmatus	Semipalmated Plover	Present in Park	Unknown	Migratory	Native
MNRR	Charadriidae	Charadrius vociferus	Killdeer	Present in Park	Unknown	Breeder	Native
MNRR	Charadriidae	Pluvialis dominica	American Golden-Plover	Present in Park	Unknown	Migratory	Native
MNRR	Charadriidae	Pluvialis squatarola	Black-bellied Plover	Present in Park	Unknown	Migratory	Native
MNRR	Charadriidae	Recurvirostra americana	American Avocet	Present in Park	Unknown	Unknown	Native
MNRR	Ciconiidae	Cathartes aura	Turkey Vulture	Present in Park	Unknown	Unknown	Native
MNRR	Coccyzidae	Coccyzus americanus	Yellow-billed Cuckoo	Present in Park	Unknown	Unknown	Native
MNRR	Coccyzidae	Coccyzus erythrophthalmus	Black-billed Cuckoo	Present in Park	Unknown	Breeder	Native
MNRR	Columbidae	Columba livia	Rock Dove	Present in Park	Unknown	Unknown	Non-Native
MNRR	Columbidae	Zenaida macroura	Mourning Dove	Present in Park	Unknown	Breeder	Native
MNRR	Corvidae	Corvus brachyrhynchos	American Crow	Present in Park	Unknown	Breeder	Native
MNRR	Corvidae	Cyanocitta cristata	Blue Jay	Present in Park	Unknown	Breeder	Native
MNRR	Corvidae	Pica hudsonia	Black-billed Magpie	Present in Park	Unknown	Unknown	Native

MNRR	Falconidae	Falco columbarius	Merlin	Present in Park	Unknown	Migratory	Native
MNRR	Falconidae	Falco sparverius	American Kestrel	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Agelaius phoeniceus	Red-winged Blackbird	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Ammodramus leconteii	Le Conte's Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Ammodramus savannarum	Grasshopper Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Calamospiza melanocorys	Lark Bunting	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Calcarius lapponicus	Lapland Longspur	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Cardinalis cardinalis	Northern Cardinal	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Carduelis pinus	Pine Siskin	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Carduelis tristis	American Goldfinch	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Carpodacus mexicanus	House Finch	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Carpodacus purpureus	Purple Finch	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Chondestes grammacus	Lark Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Dendroica caerulescens	Black-throated Blue Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Dendroica castanea	Bay-breasted Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Dendroica coronata	Yellow-rumped Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Dendroica fusca	Blackburnian Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Dendroica magnolia	Magnolia Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Dendroica palmarum	Palm Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Dendroica pensylvanica	Chestnut-sided Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Dendroica petechia	Yellow Warbler	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Dendroica pinus	Pine Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Dendroica striata	Blackpoll Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Dendroica tigrina	Cape May Warbler	Present in Park	Unknown	Migratory	Native

MNRR	Fringillidae	<i>Dendroica virens</i>	Black-throated Green Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Dolichonyx oryzivorus</i>	Bobolink	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Geothlypis trichas</i>	Common Yellowthroat	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Icteria virens</i>	Yellow-breasted Chat	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Icterus galbula</i>	Baltimore Oriole	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Icterus spurius</i>	Orchard Oriole	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Junco hyemalis</i>	Dark-eyed Junco	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	<i>Melospiza georgiana</i>	Swamp Sparrow	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Melospiza lincolnii</i>	Lincoln's Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	<i>Melospiza melodia</i>	Song Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Mniotilta varia</i>	Black-and-white Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Molothrus ater</i>	Brown-headed Cowbird	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Oporornis agilis</i>	Connecticut Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	<i>Oporornis philadelphia</i>	Mourning Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Parula americana</i>	Northern Parula	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	<i>Passerculus sandwichensis</i>	Savannah Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Passerella iliaca</i>	Fox Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	<i>Passerina caerulea</i>	Blue Grosbeak	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Passerina cyanea</i>	Indigo Bunting	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	<i>Pheucticus ludovicianus</i>	Rose-breasted Grosbeak	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Pipilo erythrophthalmus</i>	Eastern Towhee	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Pipilo maculatus</i>	Spotted Towhee	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Piranga olivacea</i>	Scarlet Tanager	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	<i>Plectrophenax nivalis</i>	Snow Bunting	Present in Park	Unknown	Migratory	Native

MNRR	Fringillidae	Poocetes gramineus	Vesper Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Protonotaria citrea	Prothonotary Warbler	Unconfirmed	NA	NA	Native
MNRR	Fringillidae	Quiscalus mexicanus	Great-tailed Grackle	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Quiscalus quiscula	Common Grackle	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Seiurus noveboracensis	Northern Waterthrush	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Setophaga ruticilla	American Redstart	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Spiza americana	Dickcissel	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Spizella arborea	American Tree Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Spizella pallida	Clay-colored Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Spizella passerina	Chipping Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Spizella pusilla	Field Sparrow	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Sturnella magna	Eastern Meadowlark	Unconfirmed	NA	NA	Native
MNRR	Fringillidae	Sturnella neglecta	Western Meadowlark	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Vermivora celata	Orange-crowned Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Vermivora chrysoptera	Golden-winged Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Vermivora peregrina	Tennessee Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Vermivora pinus	Blue-winged Warbler	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Vermivora ruficapilla	Nashville Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Wilsonia canadensis	Canada Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Wilsonia pusilla	Wilson's Warbler	Present in Park	Unknown	Unknown	Native
MNRR	Fringillidae	Xanthocephalus xanthocephalus	Yellow-headed Blackbird	Present in Park	Unknown	Breeder	Native
MNRR	Fringillidae	Zonotrichia albicollis	White-throated Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Zonotrichia leucophrys	White-crowned Sparrow	Present in Park	Unknown	Migratory	Native
MNRR	Fringillidae	Zonotrichia querula	Harris's Sparrow	Present in Park	Unknown	Migratory	Native

MNRR	Gaviidae	<i>Gavia immer</i>	Common Loon	Present in Park	Unknown	Unknown	Native
MNRR	Hirundinidae	<i>Hirundo rustica</i>	Barn Swallow	Present in Park	Unknown	Breeder	Native
MNRR	Hirundinidae	<i>Petrochelidon pyrrhonota</i>	Cliff Swallow	Present in Park	Unknown	Breeder	Native
MNRR	Hirundinidae	<i>Progne subis</i>	Purple Martin	Present in Park	Unknown	Unknown	Native
MNRR	Hirundinidae	<i>Riparia riparia</i>	Bank Swallow	Present in Park	Unknown	Breeder	Native
MNRR	Hirundinidae	<i>Stelgidopteryx serripennis</i>	Northern Rough-winged Swallow	Present in Park	Unknown	Breeder	Native
MNRR	Hirundinidae	<i>Tachycineta bicolor</i>	Tree Swallow	Present in Park	Unknown	Breeder	Native
MNRR	Laniidae	<i>Lanius excubitor</i>	Northern Shrike	Present in Park	Unknown	Migratory	Native
MNRR	Laniidae	<i>Lanius ludovicianus</i>	Loggerhead Shrike	Present in Park	Unknown	Breeder	Native
MNRR	Laridae	<i>Chlidonias niger</i>	Black Tern	Present in Park	Unknown	Unknown	Native
MNRR	Laridae	<i>Larus argentatus</i>	Herring Gull	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Larus californicus</i>	California Gull	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Larus delawarensis</i>	Ring-billed Gull	Present in Park	Unknown	Unknown	Native
MNRR	Laridae	<i>Larus hyperboreus</i>	Glaucous Gull	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Larus philadelphia</i>	Bonaparte's Gull	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Larus pipixcan</i>	Franklin's Gull	Present in Park	Unknown	Unknown	Native
MNRR	Laridae	<i>Larus thayeri</i>	Thayer's Gull	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Rissa tridactyla</i>	Black-legged Kittiwake	Present in Park	Unknown	Migratory	Native
MNRR	Laridae	<i>Sterna antillarum</i>	Least Tern	Present in Park	Unknown	Breeder	Native
MNRR	Laridae	<i>Sterna caspia</i>	Caspian Tern	Present in Park	Unknown	Unknown	Native
MNRR	Laridae	<i>Sterna forsteri</i>	Forster's Tern	Present in Park	Unknown	Unknown	Native
MNRR	Laridae	<i>Xema sabini</i>	Sabine's Gull	Present in Park	Unknown	Migratory	Native
MNRR	Muscicapidae	<i>Catharus guttatus</i>	Hermit Thrush	Present in Park	Unknown	Unknown	Native
MNRR	Muscicapidae	<i>Catharus minimus</i>	Gray-cheeked Thrush	Present in Park	Unknown	Migratory	Native

MNRR	Muscicapidae	Catharus ustulatus	Swainson's Thrush	Present in Park	Unknown	Unknown	Native
MNRR	Muscicapidae	Hylocichla mustelina	Wood Thrush	Present in Park	Unknown	Breeder	Native
MNRR	Muscicapidae	Sialia sialis	Eastern Bluebird	Present in Park	Unknown	Breeder	Native
MNRR	Muscicapidae	Turdus migratorius	American Robin	Present in Park	Unknown	Breeder	Native
MNRR	Odontophoridae	Colinus virginianus	Northern Bobwhite	Present in Park	Unknown	Breeder	Native
MNRR	Paridae	Poecile atricapillus	Black-capped Chickadee	Present in Park	Unknown	Breeder	Native
MNRR	Parulidae	Seiurus aurocapilla	Ovenbird	Present in Park	Unknown	Breeder	Native
MNRR	Passeridae	Anthus rubescens	American Pipit	Present in Park	Unknown	Migratory	Native
MNRR	Passeridae	Passer domesticus	House Sparrow	Present in Park	Unknown	Breeder	Non-Native
MNRR	Pelecanidae	Pelecanus erythrorhynchos	American White Pelican	Present in Park	Unknown	Migratory	Native
MNRR	Phalacrocoracidae	Phalacrocorax auritus	Double-crested Cormorant	Present in Park	Unknown	Unknown	Native
MNRR	Phasianidae	Meleagris gallopavo	Wild Turkey	Present in Park	Unknown	Breeder	Native
MNRR	Phasianidae	Perdix perdix	Gray Partridge	Present in Park	Unknown	Unknown	Non-Native
MNRR	Phasianidae	Phasianus colchicus	Ring-necked Pheasant	Present in Park	Unknown	Breeder	Non-Native
MNRR	Phasianidae	Tympanuchus cupido	Greater Prairie-Chicken	Unconfirmed	NA	NA	Native
MNRR	Phasianidae	Tympanuchus phasianellus	Sharp-tailed Grouse	Probably Present	NA	NA	Native
MNRR	Picidae	Colaptes auratus	Northern Flicker	Present in Park	Unknown	Breeder	Native
MNRR	Picidae	Melanerpes carolinus	Red-bellied Woodpecker	Present in Park	Unknown	Breeder	Native
MNRR	Picidae	Melanerpes erythrocephalus	Red-headed Woodpecker	Present in Park	Unknown	Breeder	Native
MNRR	Picidae	Picoides pubescens	Downy Woodpecker	Present in Park	Unknown	Breeder	Native
MNRR	Picidae	Picoides villosus	Hairy Woodpecker	Present in Park	Unknown	Breeder	Native
MNRR	Picidae	Sphyrapicus varius	Yellow-bellied Sapsucker	Present in Park	Unknown	Migratory	Native
MNRR	Podicipedidae	Aechmophorus clarkii	Clark's Grebe	Present in Park	Unknown	Migratory	Native
MNRR	Podicipedidae	Aechmophorus occidentalis	Western Grebe	Present in Park	Unknown	Migratory	Native

MNRR	Podicipedidae	Podiceps auritus	Horned Grebe	Present in Park	Unknown	Migratory	Native
MNRR	Podicipedidae	Podiceps grisegena	Red-necked Grebe	Present in Park	Unknown	Migratory	Native
MNRR	Podicipedidae	Podiceps nigricollis	Eared Grebe	Present in Park	Unknown	Migratory	Native
MNRR	Podicipedidae	Podilymbus podiceps	Pied-billed Grebe	Present in Park	Unknown	Breeder	Native
MNRR	Rallidae	Fulica americana	American Coot	Present in Park	Unknown	Breeder	Native
MNRR	Rallidae	Gallinula chloropus	Common Moorhen	Present in Park	Unknown	Unknown	Native
MNRR	Rallidae	Porzana carolina	Sora	Present in Park	Unknown	Unknown	Native
MNRR	Rallidae	Rallus elegans	King Rail	Present in Park	Unknown	Unknown	Native
MNRR	Rallidae	Rallus limicola	Virginia Rail	Unconfirmed	NA	NA	Native
MNRR	Regulidae	Regulus calendula	Ruby-crowned Kinglet	Present in Park	Unknown	Migratory	Native
MNRR	Regulidae	Regulus satrapa	Golden-crowned Kinglet	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Actitis macularius	Spotted Sandpiper	Present in Park	Unknown	Breeder	Native
MNRR	Scolopacidae	Gallinago delicata	Wilson's snipe	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Arenaria interpres	Ruddy Turnstone	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Bartramia longicauda	Upland Sandpiper	Present in Park	Unknown	Unknown	Native
MNRR	Scolopacidae	Calidris alba	Sanderling	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris alpina	Dunlin	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris bairdii	Baird's Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris fuscicollis	White-rumped Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris himantopus	Stilt Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris minutilla	Least Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Calidris pusilla	Semipalmated Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Catoptrophorus semipalmatus	Willet	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Limnodromus scolopaceus	Long-billed Dowitcher	Present in Park	Unknown	Migratory	Native

MNRR	Scolopacidae	Limosa fedoa	Marbled Godwit	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Limosa haemastica	Hudsonian Godwit	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Phalaropus lobatus	Red-necked Phalarope	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Phalaropus tricolor	Wilson's Phalarope	Present in Park	Unknown	Unknown	Native
MNRR	Scolopacidae	Scolopax minor	American Woodcock	Present in Park	Unknown	Breeder	Native
MNRR	Scolopacidae	Tringa flavipes	Lesser Yellowlegs	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Tringa melanoleuca	Greater Yellowlegs	Present in Park	Unknown	Migratory	Native
MNRR	Scolopacidae	Tringa solitaria	Solitary Sandpiper	Present in Park	Unknown	Migratory	Native
MNRR	Sittidae	Sitta canadensis	Red-breasted Nuthatch	Present in Park	Occasional	Migratory	Native
MNRR	Sittidae	Sitta carolinensis	White-breasted Nuthatch	Present in Park	Unknown	Breeder	Native
MNRR	Strigidae	Asio otus	Long-eared Owl	Present in Park	Unknown	Unknown	Native
MNRR	Strigidae	Bubo virginianus	Great Horned Owl	Present in Park	Unknown	Breeder	Native
MNRR	Strigidae	Megascops asio	Eastern Screech-Owl	Present in Park	Unknown	Breeder	Native
MNRR	Strigidae	Strix varia	Barred Owl	Unconfirmed	NA	NA	Native
MNRR	Sturnidae	Dumetella carolinensis	Gray Catbird	Present in Park	Unknown	Breeder	Native
MNRR	Sturnidae	Sturnus vulgaris	European Starling	Present in Park	Unknown	Breeder	Non-Native
MNRR	Sturnidae	Toxostoma rufum	Brown Thrasher	Present in Park	Unknown	Breeder	Native
MNRR	Trochilidae	Archilochus colubris	Ruby-throated Hummingbird	Present in Park	Unknown	Unknown	Native
MNRR	Tyrannidae	Contopus virens	Eastern Wood-Pewee	Present in Park	Unknown	Breeder	Native
MNRR	Tyrannidae	Empidonax alnorum	Alder Flycatcher	Present in Park	Unknown	Unknown	Native
MNRR	Tyrannidae	Empidonax flaviventris	Yellow-bellied Flycatcher	Present in Park	Unknown	Migratory	Native
MNRR	Tyrannidae	Empidonax minimus	Least Flycatcher	Present in Park	Unknown	Unknown	Native
MNRR	Tyrannidae	Empidonax traillii	Willow Flycatcher	Present in Park	Unknown	Breeder	Native
MNRR	Tyrannidae	Myiarchus crinitus	Great Crested Flycatcher	Present in Park	Unknown	Breeder	Native

MNRR	Tyrannidae	Sayornis phoebe	Eastern Phoebe	Present in Park	Unknown	Unknown	Native
MNRR	Tyrannidae	Sayornis saya	Say's Phoebe	Present in Park	Unknown	Unknown	Native
MNRR	Tyrannidae	Tyrannus tyrannus	Eastern Kingbird	Present in Park	Unknown	Breeder	Native
MNRR	Tyrannidae	Tyrannus verticalis	Western Kingbird	Present in Park	Unknown	Breeder	Native
MNRR	Tytonidae	Tyto alba	Barn Owl	Unconfirmed	NA	NA	Native
MNRR	Vireonidae	Vireo bellii	Bell's Vireo	Present in Park	Unknown	Breeder	Native
MNRR	Vireonidae	Vireo flavifrons	Yellow-throated Vireo	Present in Park	Unknown	Breeder	Native
MNRR	Vireonidae	Vireo gilvus	Warbling Vireo	Present in Park	Unknown	Breeder	Native
MNRR	Vireonidae	Vireo olivaceus	Red-eyed Vireo	Present in Park	Unknown	Breeder	Native
MNRR	Vireonidae	Vireo philadelphicus	Philadelphia Vireo	Present in Park	Unknown	Migratory	Native
MNRR	Vireonidae	Vireo solitarius	Blue-headed Vireo	Present in Park	Unknown	Unknown	Native

Mammals of MNRR

Park	Family	Scientific Name	Common Name	Park Status	Abundance	Residency	Nativity
MNRR	Bovidae	Bos bison	American bison	Present in Park	Uncommon	Breeder	Native
MNRR	Canidae	Canis latrans	coyote	Present in Park	Common	Breeder	Native
MNRR	Canidae	Urocyon cinereoargenteus	common gray fox	Probably Present	NA	NA	Native
MNRR	Canidae	Vulpes vulpes	red fox	Present in Park	Common	Breeder	Native
MNRR	Castoridae	Castor canadensis	American beaver	Present in Park	Common	Breeder	Native
MNRR	Cervidae	Cervus elaphus	elk	Present in Park	Uncommon	Breeder	Native
MNRR	Cervidae	Odocoileus hemionus	mule deer	Present in Park	Unknown	Breeder	Native
MNRR	Cervidae	Odocoileus virginianus	white-tailed deer	Present in Park	Common	Breeder	Native
MNRR	Didelphidae	Didelphis virginiana	Virginia opossum	Present in Park	Uncommon	Breeder	Unknown
MNRR	Dipodidae	Zapus hudsonius	meadow jumping mouse	Probably Present	NA	NA	Native
MNRR	Erethizontidae	Erethizon dorsatum	North American porcupine	Present in Park	Unknown	Unknown	Native
MNRR	Felidae	Lynx rufus	bobcat	Probably Present	NA	NA	Native
MNRR	Felidae	Puma concolor	mountain lion	Present in Park	Rare	Unknown	Native
MNRR	Geomyidae	Geomys bursarius	plains pocket gopher	Present in Park	Abundant	Breeder	Native
MNRR	Heteromyidae	Chaetodipus hispidus	hispid pocket mouse	Present in Park	Rare	Breeder	Native
MNRR	Heteromyidae	Dipodomys ordii	Ord's kangaroo rat	Unconfirmed	NA	NA	Native
MNRR	Heteromyidae	Perognathus flavescens	plains pocket mouse	Present in Park	Uncommon	Breeder	Native
MNRR	Leporidae	Lepus californicus	black-tailed jackrabbit	Present in Park	Uncommon	Breeder	Native
MNRR	Leporidae	Sylvilagus floridanus	eastern cottontail	Present in Park	Common	Breeder	Native
MNRR	Mephitidae	Mephitis mephitis	striped skunk	Present in Park	Unknown	Unknown	Native
MNRR	Muridae	Microtus ochrogaster	prairie vole	Present in Park	Uncommon	Breeder	Native
MNRR	Muridae	Microtus pennsylvanicus	meadow vole	Present in Park	Uncommon	Breeder	Native

MNRR	Muridae	Mus musculus	house mouse	Probably Present	NA	NA	Non-Native
MNRR	Muridae	Ondatra zibethicus	common muskrat	Present in Park	Common	Breeder	Native
MNRR	Muridae	Peromyscus leucopus	white-footed mouse	Present in Park	Abundant	Breeder	Native
MNRR	Muridae	Peromyscus maniculatus	deer mouse	Present in Park	Abundant	Breeder	Native
MNRR	Muridae	Rattus norvegicus	Norway rat	Present in Park	Uncommon	Breeder	Non-Native
MNRR	Muridae	Reithrodontomys megalotis	western harvest mouse	Present in Park	Common	Breeder	Native
MNRR	Mustelidae	Lontra canadensis	northern river otter	Probably Present	NA	NA	Native
MNRR	Mustelidae	Mustela frenata	long-tailed weasel	Probably Present	NA	NA	Native
MNRR	Mustelidae	Mustela nivalis	least weasel	Probably Present	NA	NA	Native
MNRR	Mustelidae	Mustela vison	American mink	Present in Park	Common	Breeder	Native
MNRR	Mustelidae	Taxidea taxus	American badger	Present in Park	Unknown	Breeder	Native
MNRR	Procyonidae	Procyon lotor	northern raccoon	Present in Park	Common	Breeder	Native
MNRR	Sciuridae	Marmota monax	woodchuck	Present in Park	Common	Breeder	Native
MNRR	Sciuridae	Sciurus niger	eastern fox squirrel	Present in Park	Common	Breeder	Native
MNRR	Sciuridae	Spermophilus franklinii	Franklin's ground squirrel	Present in Park	Uncommon	Breeder	Native
MNRR	Sciuridae	Spermophilus tridecemlineatus	thirteen-lined ground squirrel	Present in Park	Unknown	Breeder	Native
MNRR	Soricidae	Blarina brevicauda	northern short-tailed shrew	Present in Park	Common	Breeder	Native
MNRR	Soricidae	Sorex cinereus	masked shrew	Present in Park	Common	Breeder	Native
MNRR	Soricidae	Sorex hoyi	pygmy shrew	Probably Present	NA	NA	Native
MNRR	Talpidae	Scalopus aquaticus	eastern mole	Present in Park	Unknown	Breeder	Native
MNRR	Vespertilionidae	Eptesicus fuscus	big brown bat	Present in Park	Common	Breeder	Native
MNRR	Vespertilionidae	Lasionycteris noctivagans	silver-haired bat	Present in Park	Unknown	Unknown	Native
MNRR	Vespertilionidae	Lasiurus borealis	eastern red bat	Present in Park	Uncommon	Breeder	Native
MNRR	Vespertilionidae	Lasiurus cinereus	hoary bat	Present in Park	Uncommon	Breeder	Native

MNRR	Vespertilionidae	Myotis lucifugus	little brown myotis	Present in Park	Uncommon	Breeder	Native
MNRR	Vespertilionidae	Myotis septentrionalis	northern long-eared myotis	Present in Park	Common	Breeder	Native
MNRR	Vespertilionidae	Nycticeius humeralis	evening bat	Probably Present	NA	NA	Native
MNRR	Vespertilionidae	Pipistrellus subflavus	eastern pipistrelle	Present in Park	Unknown	Unknown	Native

MARSH BIRD SURVEY SPECIES – COMPLETE LIST

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Table 3: Complete List of Niobrara Delta Bird Species Detected 2010-2012

<u>Wading Birds</u>	<u>Passerines</u>
Least Bittern*	American Crow
Great Blue Heron	Willow Flycatcher*
Great Egret (flyover)	Eastern Wood-peewee
Green Heron*	Eastern Kingbird
<u>Geese Ducks and Grebes</u>	Bell's Vireo*
Canada Goose	Yellow-throated Vireo
Wood Duck	Northern Rough-winged
Mallard	Swallow
Gadwall	Bank Swallow
Northern Shoveler	Tree Swallow
Blue-winged Teal	Cliff Swallow
Pied-billed Grebe	Barn Swallow
<u>Rails/Cranes</u>	Marsh Wren
American Coot	Sedge Wren
Virginia Rail	Gray Catbird
Sora	Yellow Warbler
Sandhill Crane	Common Yellowthroat
<u>Gulls and Terns</u>	Rose-breasted Grosbeak
Franklin's Gull	Dickcissel
Ring-billed Gull	American Goldfinch
Forster's Tern*	Chipping Sparrow
Least Tern*	Song Sparrow
Black Tern	Swamp Sparrow*
<u>Raptors and Owls</u>	Western Meadowlark
Bald Eagle	Bobolink
Peregrine Falcon	Brown-headed Cowbird
Great Horned Owl	Yellow-headed Blackbird
<u>Shorebirds</u>	Red-winged Blackbird
Piping Plover*	Common Grackle
Killdeer	Baltimore Oriole
American Avocet	Orchard Oriole
Greater Yellowlegs	<u>Other</u>
Lesser Yellowlegs	American Pelican
Spotted Sandpiper	Wild Turkey
Ruddy Turnstone* (flyover)	Mourning Dove
Dunlin	Yellow-billed Cuckoo*
Pectoral Sandpiper	Belted Kingfisher*
White-rumped Sandpiper	Northern Flicker
Semi-palmated Sandpiper	Red-bellied Woodpecker
Least Sandpiper*	Red-headed Woodpecker
Stilt Sandpiper	Chimney Swift
Long-billed Dowitcher (flyover)	
Common Snipe	79 Total Species
Wilson's Phalarope	

Bold denotes species targeted by call playback surveys

*Species considered uncommon in South Dakota¹⁰

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